Set-Top Box

iTelec STB 82x

User Guide

Version 36

Notices

iTelec STB 82x User Guide

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Introduction

This User Guide describes the iTelec STB 82x Set-Top Box (hereinafter STB) that is intended for receiving of digital TV (DVB-T) or Internet (IPTV) broadcasting in MPEG-2 and MPEG-4.10 (AVC/H.264) formats.

The User Guide contains the following information:

- The STB description and specifications
- Common rules and safety standards
- Instructions for the STB provisioning and usage
- Maintenance and troubleshooting instructions

Please read all of the enclosed instructions before using the STB.

1. STB Description

1.1 STB Destination

The STB is intended for receiving of digital data (video, audio, service information, user data, etc.) that broadcast via digital TV systems (DVB-T) or Internet (IPTV). The STB decodes and decrypts media data and renders it using the corresponding TV set, home theater or PC systems.

The STB is developed for use in households, hotels, health centers, rest homes, hospitals, and so on.

The following digital data sources are supported:

- Digital TV broadcasting (DVB-T) which signal is received using a DVB-T aerial connected to the STB
- Digital TV data broadcast via IP network (Ethernet, RJ-45)
- Files from any type of USB storage (FlashDrive, portable USB disk, etc.)

User controls the STB via the following interfaces:

- Issuing the command or selection of the STB internal menu command using the STB remote control
- Selection of the STB internal menu command using a keyboard or mouse connected with the USB jacks
- Selection of the STB internal menu command using the navigation buttons on the STB front panel

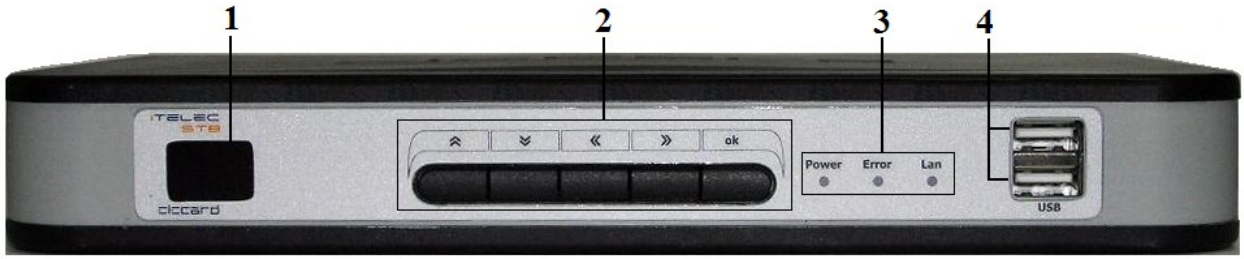
1.2 STB Design

The STB is manufactured as the circuit board mounted in a plastic box with overall dimensions 238x145x35 mm.

1.2.1 Front Panel

The control elements, IR receiver window, LED indicators and USB connectors are placed on the front panel.

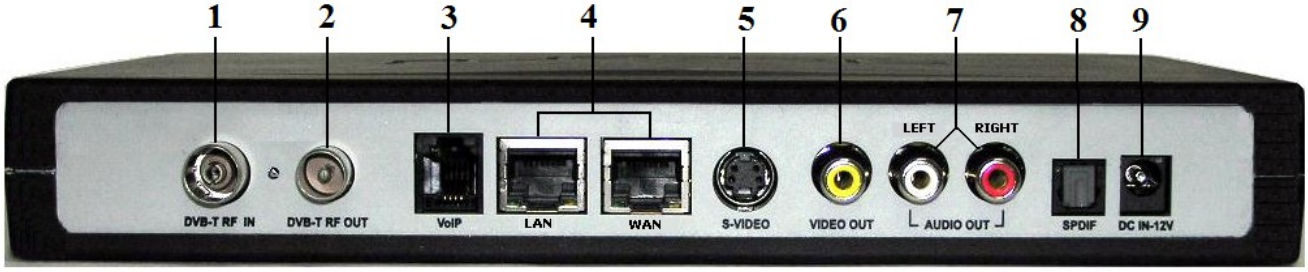
Figure 1. Front Panel



1. The receiving window for infrared signals from the remote control (RC)
2. Buttons for the STB menu navigation (**Up** ⌃, **Down** ⌄, **Left** ‹, **Right** ›, **OK** ok)
3. LED indicators:
    - **Power** – indicates the supply presence (red), working mode (blue) or standby mode (pink-pale)
    - **Error** – indicates an error or malfunction presence (red)
    - **LAN** – indicates the network data receiving/sending (green)
4. Two **USB** connectors for use with a portable memory device, keyboard, mouse, etc.

1.2.2 Back Panel

Figure 2. Back Panel



The following connectors are placed on the back panel:

1. **DVB-T RF IN –** input connection for a DVB-T aerial
2. **DVB-T RF OUT –** output connection for a DVB-T receiver
3. **VoIP –** RJ-11 socket for a telephone set connection
4. **WAN, LAN –** two Ethernet RJ-45 sockets for IP network connections (Internet and/or LAN)
5. **S-VIDEO** – S-video output connection
6. **VIDEO OUT –** composite video output (RCA)
7. **AUDIO OUT LEFT/RIGHT** – left and right (white and red) analogue audio sockets for connection to a standard audio system (RCA)
8. **SPDIF** – an output connection for digital audio
9. **DC IN-12V –** socket for the external power supply (delivered with the STB)

1.3 Delivery Set

The STB delivery set is described in the following table.

Table 1. Delivery Set

Наименование	Количество, шт.
Set-Top Box iTelec STB 82x	1
Transit packaging	1
Audio-video cable 3RCA-3RCA, 1.5 m in length	1
S-Video cable, 1.5 m in length	1
Ethernet cable 5 category (patch cord), 1 m in length	1
Power supply for iTelec STB 82x, 12B, 2A	1
Remote control for iTelec STB 82x	1
User Guide (this document)	1

1.4 Marking

The marking name plate located on the STB lower panel contains the following information:

- Trade mark and the product full name
- Country of design
- Country of making
- Date of making
- Serial number
- MAC address of the built-in Ethernet adapter
- Power supply characteristics

2. Using the STB

2.1 Operating Limitations

The STB is designed for operation in enclosed space with the following conditions:

- Ambient temperature from +5°C to +40°C
- Atmospheric moisture capacity from 40% to 80% (temperature 25°C)
- Atmospheric pressure from 84 kPa to 107 kPa (from 630 to 800 millimeter of mercury)

2.2 The STB Provisioning

2.2.1 Safety Standards

Attention! *There is dangerous alternating voltage 220 V 50 Hz in the STB power supply unit. Be careful during the STB operating time.*

- Unplug the mains cord from the wall outlet, if the STB is not going to be used for a long period of time, or adverse weather conditions are expected (storm, lightning).
- Unplug the mains cord from the wall outlet before the STB cleaning. Do not use liquids or aerosol products to clean the STB. Wipe only the STB outer surface with a dry cloth. Do not dismantle the case.
- The STB is not user-serviceable. Servicing must only be attempted by suitably qualified service personnel.
- The STB must not be exploited in any location where it may become in contact with any liquid or vapor.
- Do not install the STB in any location where it may be exposed to direct sunlight or heat from an open fire or radiator.
- Place the STB on a hard flat surface where it may not be subject to physical shock, vibration or dropping.
- Do not cover the STB and do not place it on a soft surface. The airflow obstruction may cause the STB to overheat.

2.2.2 External examination

After the transit packaging removing make the STB external examination and verify the following:

- The delivery set checks with this User Guide
- The STB is not mechanically damaged
- Connectors are clean
- Cables are serviceable

2.3 Operability Test

To test the STB operability, do the following:

Attention! *Switch off all devices (STB, TV set, etc.) before connecting or disconnecting any cables.*

- Plug a DVB-T antenna cable (for instance, any TV aerial for decimetric waves) into the STB **DVB-T RF IN** connector
- Connect one of the STB video outputs (**S-VIDEO** or **VIDEO OUT**) with the corresponding television set input
- Connect the STB analog stereo output jacks (white and red) with the television set audio input
- Connect the STB **WAN** socket to the local network outlet (Ethernet) using the supplied patch cord
- Connect the power lead from the power supply to the STB **DC IN-12V** input and plug the power supply mains cord to the wall outlet (220 V, 50 Hz)
- Switch on the STB with any button on the front panel or using the remote control

Attention! *Before the remote control use, insert two batteries type AAA or LR03 (are not supplied with the STB) into the battery compartment, taking care to observe the correct polarity.*

2.4 Troubleshooting

The following table describes possible malfunctions and troubleshooting methods.

Table 2. Troubleshooting

Malfunction and it Signs	Probable Cause	Troubleshooting Method
Does not light **Power** indicator on the front panel after the power supply is switched on.	The power supply mains cord is not plugged to the wall outlet	Check the power supply connection to the wall outlet.
	The power supply unit does not function properly.	Replace the power supply unit or refer to the manufacturer.
The remote control doer not operates.	The power supply is not turned on.	Check the STB power supply.

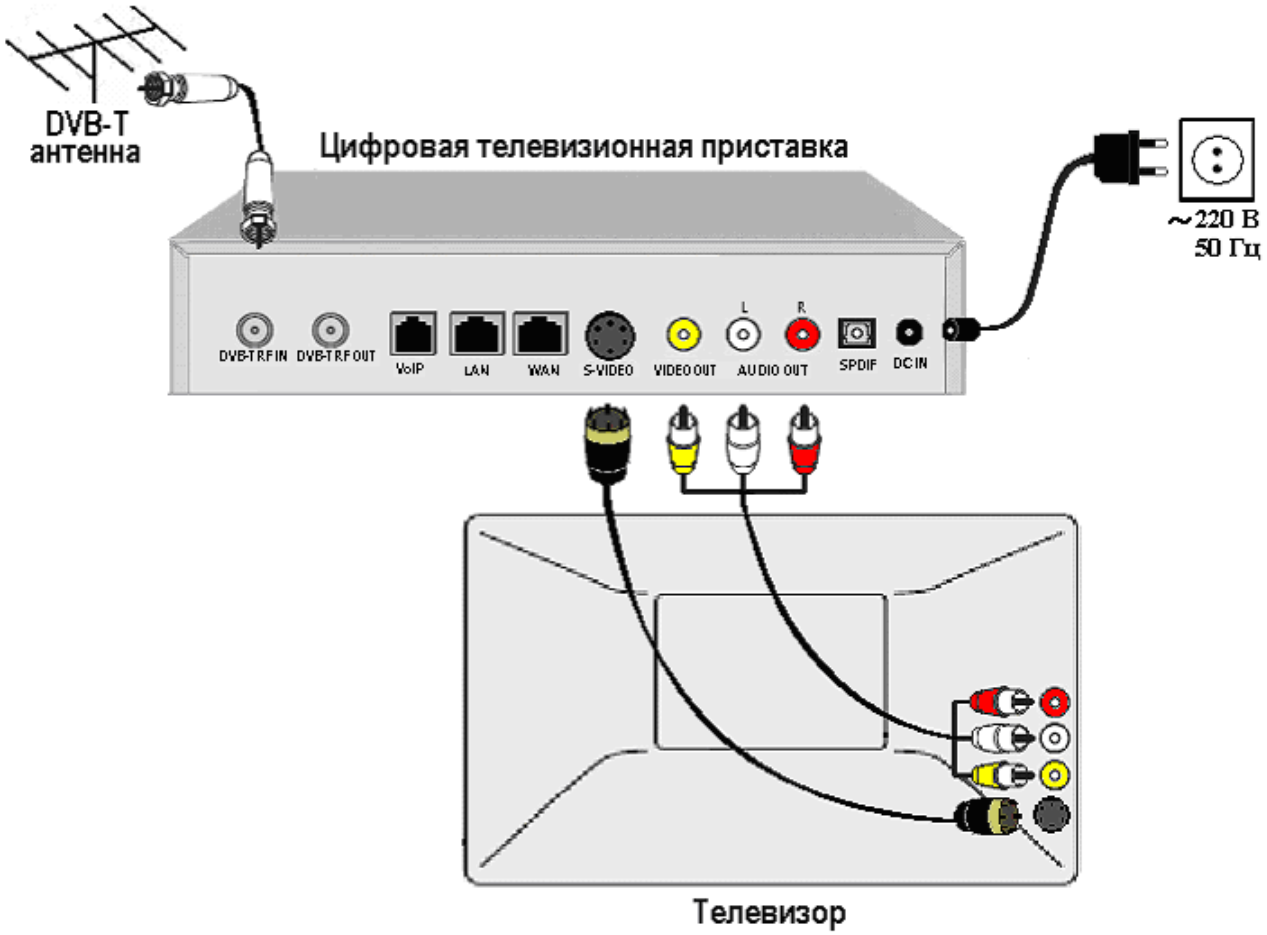
Malfunction and it Signs	Probable Cause	Troubleshooting Method
	The remote control is used improperly.	Check the remote control direction. Be sure that the IR receiver window on the STB front panel is not overshadowed with foreign objects.
	Two batteries are absent in the compartment.	Check the batteries presence in the compartment.
TV signal is present but video and/or audio are absent.	Video and/or audio cables are damaged or plugged improperly.	Check the cable intactness and connection accuracy.
	The STB is in the standby mode.	Press any channel button on the remote control or on the STB front panel.

If described actions does not produce a result, refer to the supplier or contact the maintenance service. Do not try to dismantle and repair the STB or the power supply unit.

2.5 Connecting up the STB

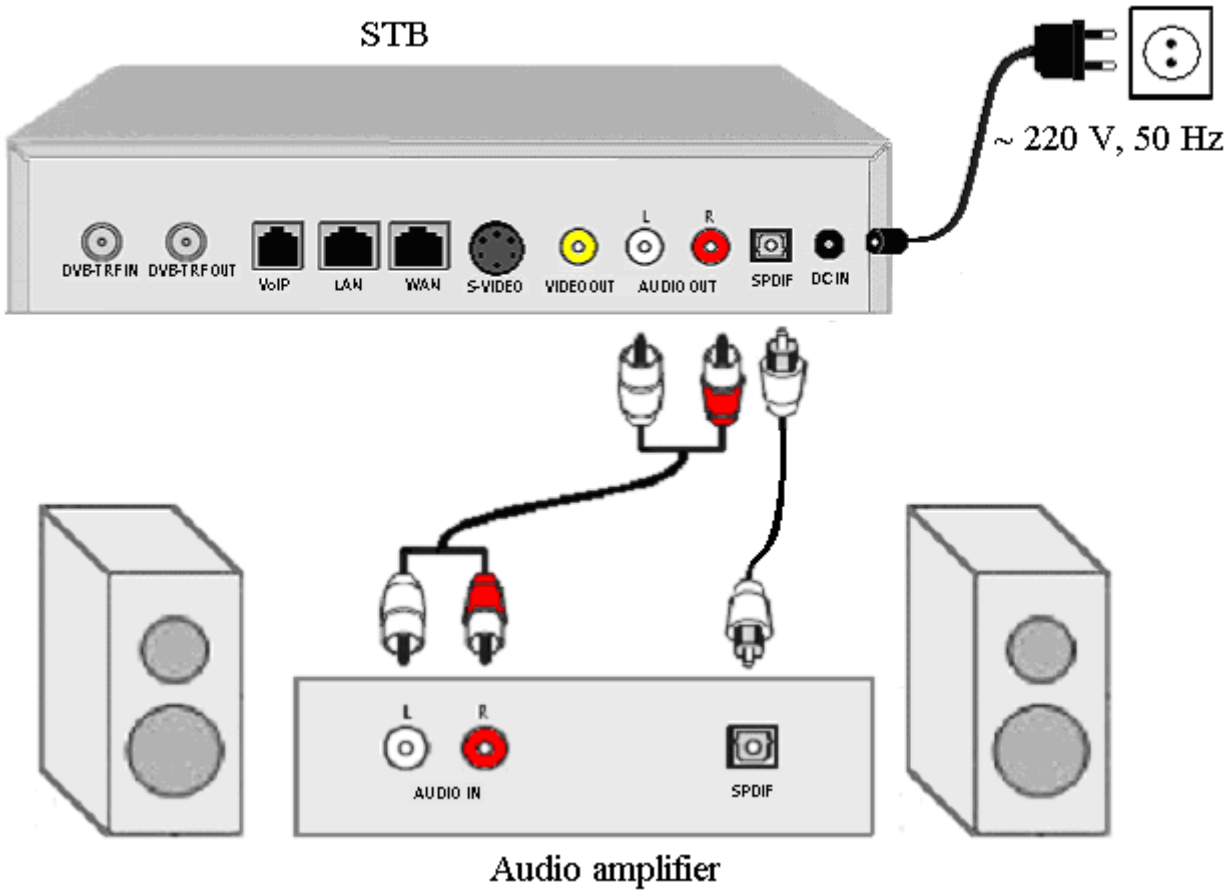
1. To connect the STB to the electricity supply network, connect the power lead from the power supply to the STB **DC IN-12V** input and plug the power supply mains cord to the wall outlet (220 V, 50 Hz).
2. Plug a DVB-T antenna cable (for instance, any TV aerial for decimetric waves) into the STB **DVB-T RF IN** connector. The **DVB-T RF OUT** connector allows transmission of received digital TV signal to other DVB-T receiving and processing devices.
3. Connect the composite video (CVBS) **VIDEO OUT** jack to the composite input of television set or other analog video receiver (VTR, multimedia projector, etc.). The four-pins MiniDIN jack allows connection of the STB video output with any S-Video receiver. It provides better picture quality and requires change of the **Output Format** parameter in the **Video and Audio** configuration menu (see below).

Figure 3. Connecting DVB-T Antenna and TV Set



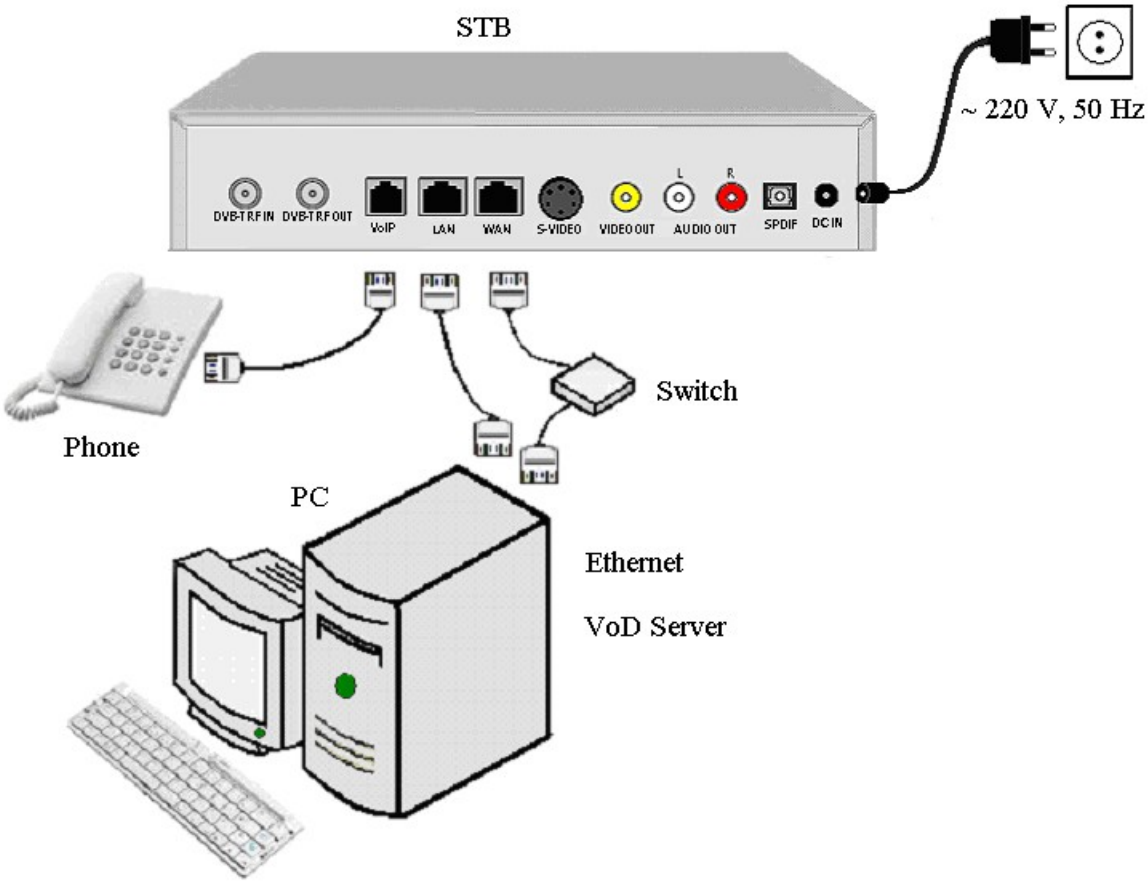
4. Connect the STB analog stereo output jacks (**AUDIO OUT LEFT/RIGHT** — white and red) with the television set audio input (or analog audio amplifier) using the supplied 3RCA-3RCA cable. The digital optical output (**SPDIF**) allows high quality sound playback using an external decoder and amplifier (SPDIF optical lead is not supplied).

Figure 4. Connecting Audio



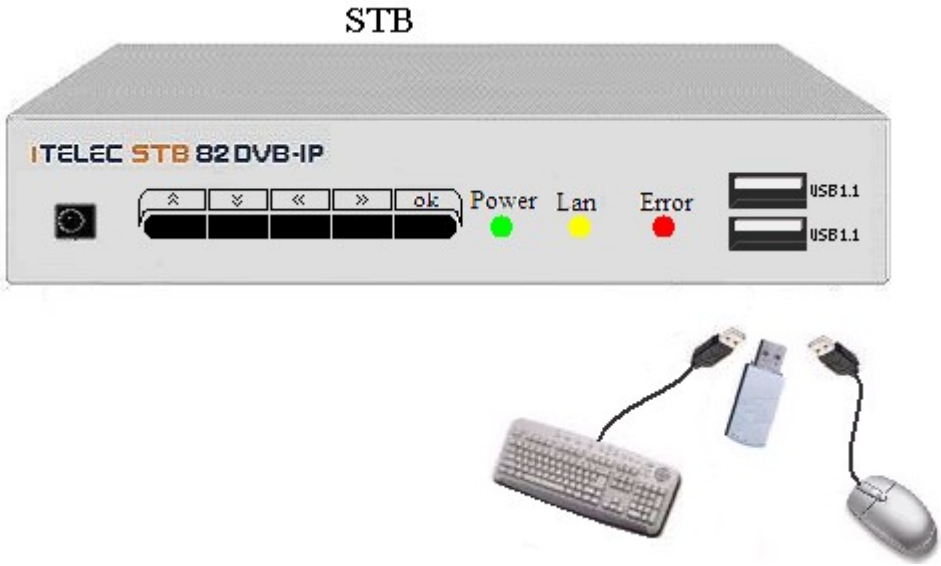
5. Connect the STB **WAN** socket to the local network outlet (Ethernet) using the supplied patch cord. The **LAN** socket (if presented) allows the STB usage as a router.
6. An external telephone set is connected to the RJ-11 (**VoIP**) socket using a telephone cable (not supplied).

Figure 5. Connecting Telephone Set and Local Network



7. The **USB** slots allow connecting any portable memory device, keyboard, mouse, etc.

Figure 6. Connecting Mouse, Keyboard and Portable Memory Device



2.6 Basic STB Operations

2.6.1 Operation Modes

The STB operates in the following modes:

- ***Standby*** — This state provides minimal power consumption. The STB in the *Standby* mode may not be used for a long period of time (up to a few days). The mode is set with long pressing of the **Power** button on the remote control. Pressing of the **Power** button or any front panel button activates the STB *Loading* mode.
- ***Loading*** — In this mode the system integrity check and the STB software update search are performed. If the tests are completed successfully, the STB is loaded in normal mode. The loading process duration depends on the software version and averages 20-30 seconds.
- ***Work*** — This mode provides access to all of the STB features – preview of DVB-T on-air broadcasting and Internet broadcasting (multicast and Video on Demand), playback of files from external USB storage, web navigation, system adjustment and so on.
- ***Sleep*** — In this mode the STB processor works on low frequency (sleeps), energy consumption is low, memory content is not lost. The mode is set with short pressing of the **Power** button on the remote control when the STB operates in the *Work* mode. It stops execution of all tasks. And the device only keeps track of the internal clock information and waits the awakening command from the remote control (short pressing of the **Power** button). After return to *Work* mode, the interrupted task is continued (if possible).

2.6.2 Controlling the STB

2.6.2.1 Front Panel Buttons

The STB control is possible using the navigation buttons on the front panel (**Up** , **Down** , **Left** , **Right** , **OK** ok).

The button functionality depends on the screen content displayed at the moment (menu – *Menu*, playback control panel – *Panel*, navigation slider – *Slider,* confirmation window – *Confirmation*). The functionality is described in the following table.

Table 3. Front Panel Buttons

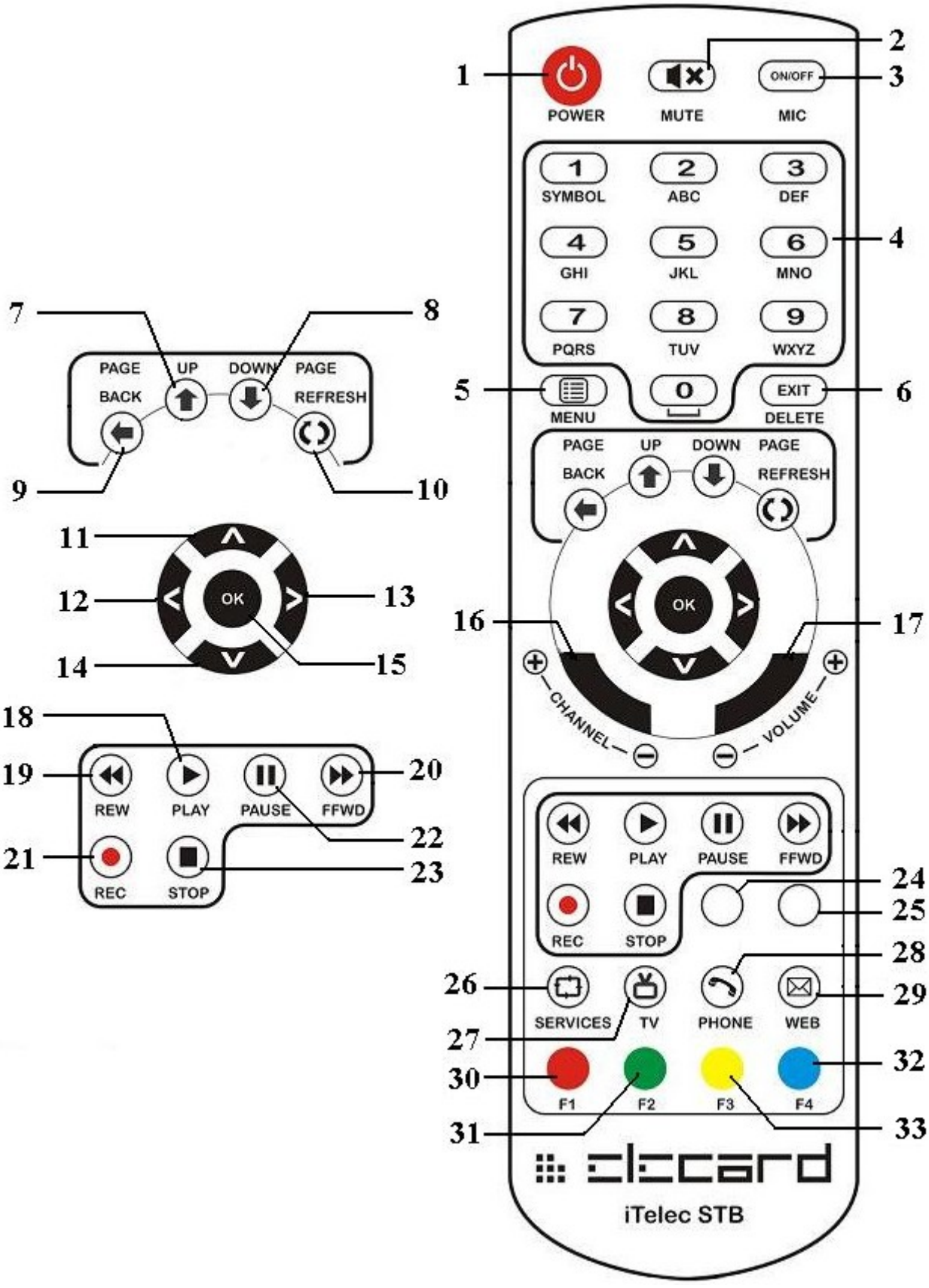
Pressed Button	On-screen Content	Action
Up	–	Volume level increase.
	Menu	Jump to the previous menu command.
	Panel	Volume level increase.
	Panel and Slider	Activation/deactivation of the navigation slider.
Down	–	Volume level decrease.
	Menu	Jump to the next menu command.
	Panel	Volume level decrease.
	Panel and Slider	Activation/deactivation of the navigation slider.
Left	–	Displaying the playback control panel.
	Menu	Jump to the menu beginning or the menu hiding.
	Confirmation	Cancel.
	Panel	Consecutive activation of the panel elements.
	Panel and Slider	Change of the slider position.
Right	–	Hiding the playback control panel.
	Menu	–
	Panel	Consecutive activation of the panel elements.
	Panel and Slider	Change of the slider position.
OK	–	Displaying the menu.
	Menu	Selection of the menu command.
	Confirmation	Confirmation.
	Panel	Selection of the panel element.
	Panel and Slider	Setting of the current playback position in accordance with the slider position.

Note: *The navigation slider is hidden after a time (about 5 seconds), if it is deactivated (lost focus).*

2.6.2.2 Remote Control

The STB control is possible using the infra-red remote control.

Figure 7. Remote Control



The remote control button functionality is described in the following table (numbers correspond to the figure above).

Table 4. Remote Control

Button	Action
1	Standby mode On/Off.
2	Mute/unmute sound.
3	Teletext mode On/Off.
4	Selection of TV channels or input of digits.
5	Menu displaying.
6	Menu hiding.
7	Moving to the previous link on web page, menu navigation (multiple items up), displaying the previous image (slide show mode).
8	Moving to the next link on web page, menu navigation (multiple items down), displaying the next image (slide show mode).
9	Return to the previous menu.
10	Web page refresh.
11	Navigation button — Up.
12	Navigation button — Left.
13	Navigation button — Right.
14	Navigation button — Down.
15	Choosing button — OK.
16	Consecutive switching of TV channels forward (+) or backward (-).
17	Volume level increase (+) or decrease (-).
18	Playback.
19	Rewind.
20	Fast forward.
21	Record.
22	Pause.
23	Stop.
24,25	Reserved buttons (not used).
26	Settings menu.
27	TV broadcasting menu.
28	IP telephony menu (not implemented in this version).
29	Web browser activation.
30, 31, 32, 33	Programmable buttons. The button functionality depends on the menu that is active at the press moment.

2.6.2.3 Operations Available During Playback

To increase/decrease sound volume, use the **VOLUME +/-** buttons of the remote control. The **MUTE** button enables the mute mode. To disable the mute mode, repress the **MUTE** button or press one of the **VOLUME +/-** buttons. The sound controlling operations are displayed on the screen.

To add the currently viewed channel to the **Favorites** menu (see *The STB Main Functionality* section), press the remote control yellow (**F3**) button.

2.6.2.4 Text Input

If you need to type any text (a parameter value in the **Settings** menu, an item name in the **Favorites** menu, etc.), use the remote control or any USB keyboard connected with one of the USB jacks.

There are two text input modes – numerical and alphabetical. In the numerical input mode the remote control or keyboard **0-9** buttons allow you to type ciphers directly. In the alphabetical mode a keyboard allows you to type text with the Roman alphabet. The repeated press of the remote control **0-9** buttons types Roman or Cyrillic letters (depending on the selected interface language). The left/right (**<**/**>**) arrow keys of the remote control select the text cursor position. The up/down arrow keys allows you to change the highlighted letter.

The yellow (**F3**) button in the alphabetical input mode turns on the virtual-keypad. In the virtual-keypad mode the USB keyboard alphabetical input is disabled, but the Cyrillic input is available (depending on the selected interface language).

Figure 8. Virtual-keypad

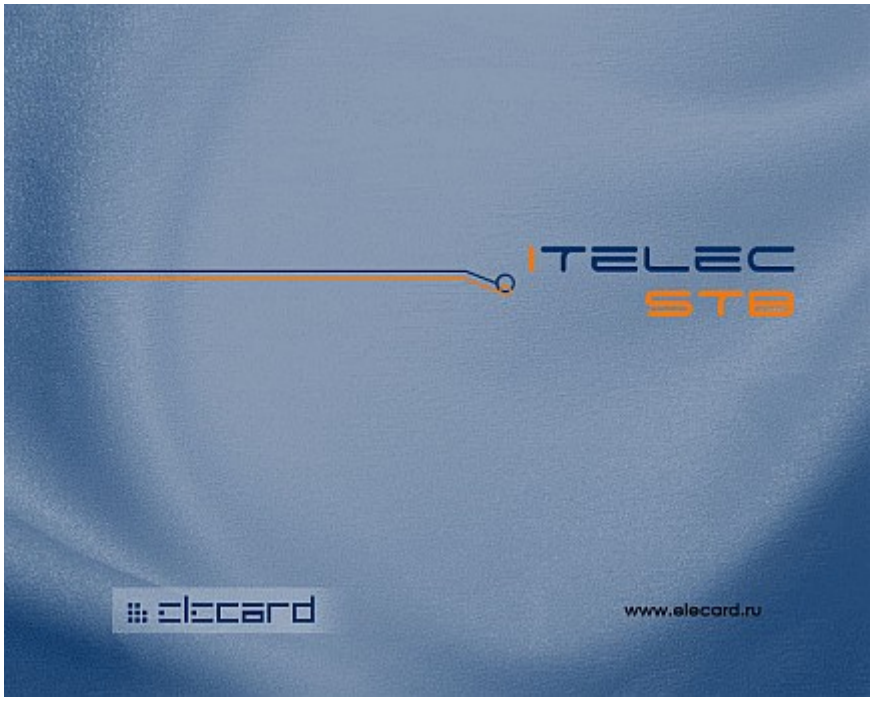
If the virtual-keypad is used, the selected key is highlighted with the blue frame. The key selection is performed with the arrow keys on the remote control, USB keyboard, or STB front panel. To activate the selected virtual key, press the **OK** button (the keyboard **ENTER** key). To choose the input language, use the **Lang** virtual key or the remote control **Page Refresh** button. To change the typed text case, use the **Shift** virtual key or the remote control red (**F1**) button. To select the text cursor position, use the virtual arrow (**<** and **>**) keys or the remote control green (**F2**) and yellow (**F3**) buttons. To delete character before the text cursor, use the **Bksp** virtual key, the remote control blue (**F4**) or **Page Back** buttons. To turn off the virtual-keypad mode, press the virtual or remote control **Exit** key (the keyboard **ESC** key).

2.7 The STB Main Functionality

2.7.1 Operation Start

When the STB is switched on, the system integrity check and the STB software update search are performed. If the tests are completed successfully, the STB is loaded in normal mode.

Figure 9. The STB Loading Screen



To display the main menu, press the **MENU** button on the remote control or the **OK** button on the STB front panel. The repeated **MENU** button press or the **EXIT** button press hides the menu. To move through the menu, use the **Up**, **Down**, **Right**, and **Left** navigation buttons on the remote control or on the STB front panel. To execute the selected menu command, press either of the two **OK** buttons. Return to the main menu is performed using the **Main Menu** button in the upper-right screen corner. To return to the previous menu, select the **Back** menu button or press the **PAGE BACK** or **EXIT** button on the remote control.

Many of the of menus allow execution of any special functions using the **F1-F4** buttons. To illustrate the enabled special functions, the auxiliary icons are displayed in the lower screen area. Only **F4** button is available from the main menu. It provides quick access to the **Favorites** menu.

The last main menu item ( ) allows the STB switching to the standby mode.

Figure 10. Main Menu

2.7.2 On-air Broadcasting

2.7.2.1 Settings

To view on-air broadcast programs, press the **TV** button on the remote control or choose **DVB Channels** from the main menu.

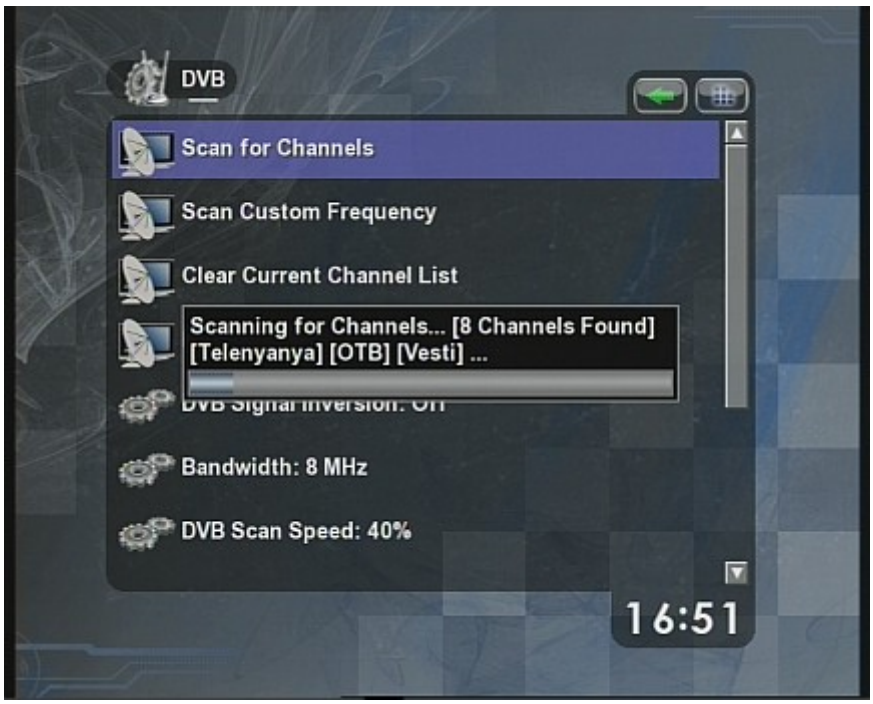
The STB provides receiving of DVB-T on-air broadcasting in the frequency range from 48 MHz to 860 MHz. The frequency range scanning is necessary to form the broadcast channel list, when the STB is started for the first time.

Figure 11. Initial Configuration of DVB-T Broadcasting

Start the channel configuration using the **F2** (green) button. The **F1** (red) button is used to abandon scanning.

During the scanning process the number of detected channels and the progress indicator are displayed.

Figure 12. Automatic Channel Scanning

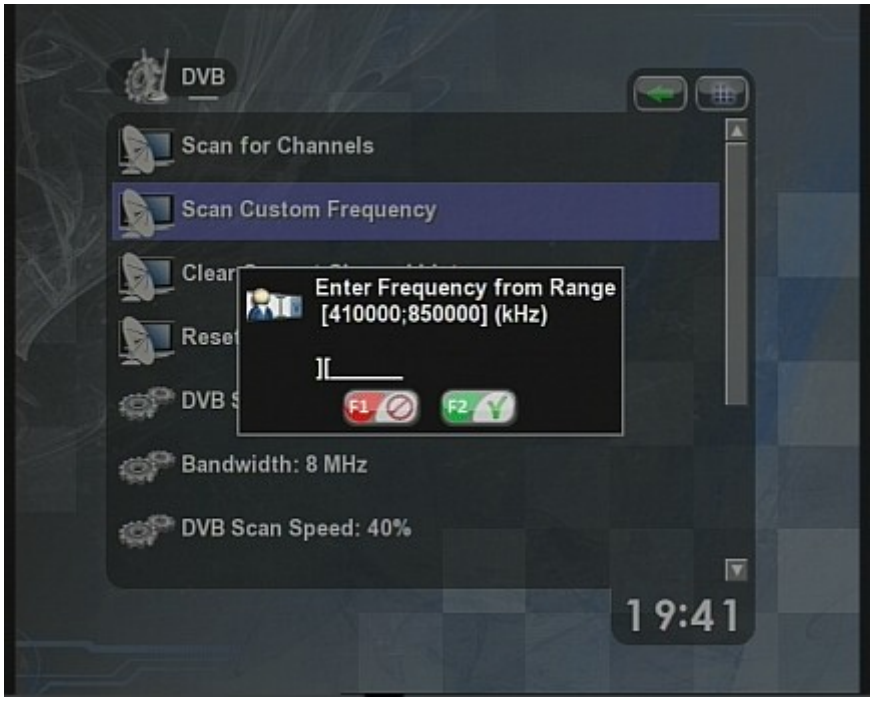


If number of the broadcast channels varies, the channel scanning must be repeated. Invoke the **Settings** menu using the **SERVICES** button on the remote control and select the **DVB** command. To scan the whole frequency range, use the **Scan for Channels** command. To scan only one TV channel bandwidth (8 MHz), use the **Scan Custom Frequency** command. In the

appeared window type the lower frequency limit using the numeric buttons and press the **F2** (green) button for confirmation. To abandon the typed value, press the **F1** (red) button.

***Note**! The current channel screening is suspended during the scanning process!*

Figure 13. Scanning the Specified Frequency



2.7.2.2 Viewing of DVB Channels

When the scanning is complete, you can view any detected channel using the **Select Channel** command from the **DVB Channels** menu. To open the **DVB Channels** menu, press the **TV** button on the remote control.

Figure 14. DVB Channels Menu

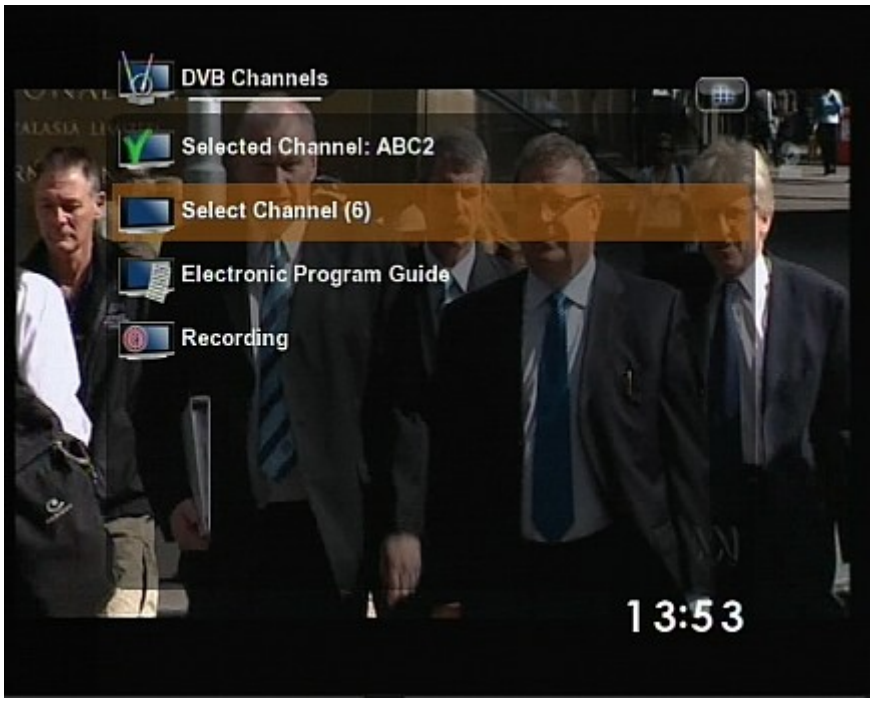


Figure 15. Channel Selection

Select the required channel using the **0-9** (selection by number) or **CHANNEL +/-** (consecutive switching) buttons on the Remote control. To view the last selected channel, choose the **Selected Channel** command and press the **OK** button.

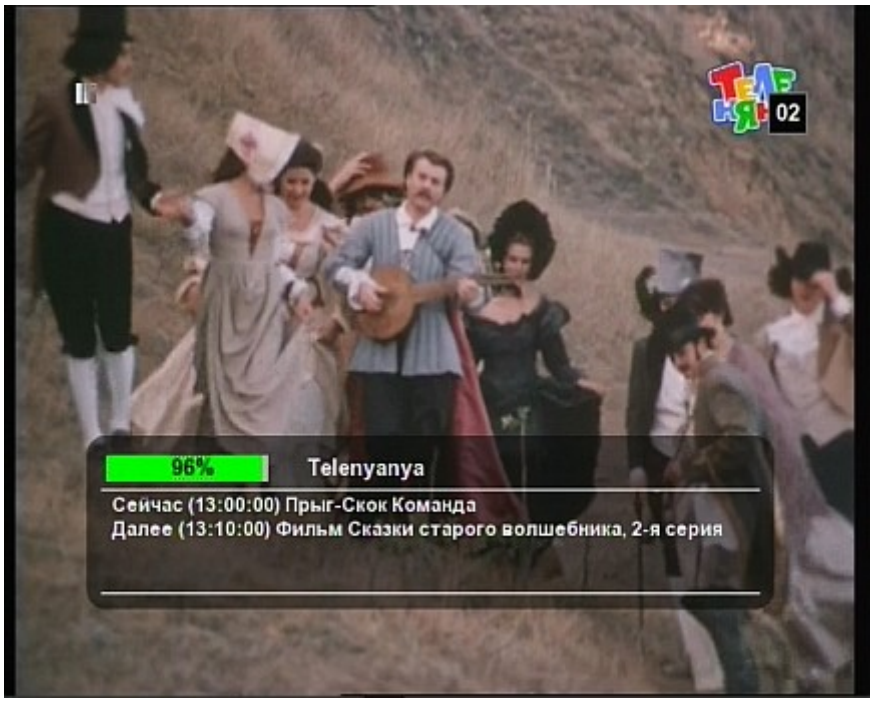
Figure 16. Multiscreen mode

If the **TV** button is pressed during the channel selection or view, four broadcast channels will be displayed simultaneously (with the same frequency). The current channel is highlighted with the light border. To switch channel in this multiscreen mode, use the arrow navigation buttons. To display the next or previous channel quadruple, use the **PREV/NEXT** or **PAGE UP/PAGE DOWN** buttons.

If a channel is broadcast in multilingual mode, the language selection menu can be invoked with the **F2** (green) button.

Figure 17. DVB-T Viewing

Figure 18. Selecting Channel by Number Using the Numeric Buttons



To change the channel number (that is set during the automatic scanning), select the channel from the **Select Channel** list and press the **F4** (blue) button. Type new two-digit number in the appeared window using the remote control numeric buttons. Confirm the typed value with the **F2** (green) button or abandon it with the **F1** (red) button.

Figure 19. Channel Number Change

The **Select Channel** menu allows sorting of the channels using the **F1** (red) button consecutive press. The following sorting modes are available:

1. No sorting (the channels are ordered according to their numbers)
2. Sorting in alphabetical order

3. Channel type sorting (TV channels at first, radio channels next), and then – alphabetically
4. Broadcasting frequency sorting, and then – alphabetically

Figure 20. Alphabetically Sorted Channel List

Figure 21. Type Sorted Channel List

To display the channel information, select the channel from the **Select Channel** list and press the **F2** (green) button. Any button pressing (remote control or front panel) hides the information window.

Figure 22. Channel Information

2.7.2.3 Electronic Program Guide

The **Electronic Program Guide** (**EPG**) menu enables access to a program schedule that is broadcast by the digital TV service provider. To see the program schedule, select the **Electronic Program Guide** command and press the **OK** button.

Figure 23. Electronic Program Guide

Select the required channel from the appeared list and press **OK**. The program schedule for the days immediately ahead will be displayed.

Figure 24. Program Schedule

The **F4** (blue) button is used for quick access to EPG. If the broadcast channel is not supplied with EPG, the **Electronic Program Guide** menu is not available and the **F4** button causes the informational message.

Figure 25. Channel Non-supplied with EPG

2.7.2.4 Teletext

If the selected channel contains the teletext information, the teletext mode can be turned on with the remote control **ON/OFF** button. The teletext loading takes some time. The number of currently loaded page is displayed in the upper-left screen corner during the loading process.

Figure 26. Teletext Viewing

Navigation in the teletext mode is performed with the remote control **0-9** or **F1-F4** buttons. The STB supports subtitles delivered as teletext. To access the teletext subtitles, enter appropriate page number (usually 888).

Figure 27. Teletext Subtitles Viewing

2.7.2.5 Recording of On-air Broadcasting

To record any on-air broadcast program, it is necessary to plug an external USB memory device (for example Flash Drive or USB HDD). Only one channel recording is available at a time. During the channel recording, view of another channel is impossible.

Figure 28. Recording of On-air Broadcasting

***Attention**! Only storages with the NTFS file system are supported!*

The memory storage must be specified before the recording process start. To specify the storage, open the **Recording** submenu from the **DVB Channels** menu, click **Recorded Video Location**, and choose memory device from the appeared list.

Figure 29. Recorded Video Location Menu

New records will be located in the *pvr* subfolder of the storage root directory. The **Records Path** menu command provides quick access to this subfolder. The *pvr* directory has the following tree-type structure:

/pvr

/record start date

/record start time

/part00.ts

/part01.ts

…

Attention*! Proper allowance must be made for the memory device capacity since one hour of recorded video content usually takes more than 1 GB. Furthermore some file systems do not support file size exceeded 2 GB. Therefore the recorded media data is splitted into pieces automatically.*

The on demand record mode and record using schedule are supported.

To start on demand recording, press the **REC** button on the remote control or click the button on the on-screen toolbar during view of an on-air broadcast program. To stop recording,

press the **REC** (repeatedly) or **STOP** button or click the button.

Figure 30. Recording on Demand

For the scheduled recording the EPG information can be used, or the record task parameters can be set manually.

To use the EPG information, select the **EPG Record** command from the **Recording** menu.

Figure 31. EPG Record Menu

The hour marked time scale is displayed at the screen top. In the upper-left corner the scale start date is indicated. The channel and program list is located under the scale. The list can be scrolled with the **PAGE UP** and **PAGE DOWN** buttons. But the topmost channel is fixed and

is always displayed in the list. It is useful for comparison of the channel schedule with another channels. To fix any channel, select it in the **Electronic Program Guide** menu and press the **F1** (red) button.

The arrow buttons are used for the program navigation. To select the program for recording, press the **F1** (red) button. The selected program is highlighted with the red band under the program and under the time scale. The record tasks for the channels not presented in the EPG are also indicated on the time scale.

The **Manage Records** menu is used for the manual management of the record tasks. The menu allows creation, deleting, and editing of the record tasks.

Figure 32. Management of Record Tasks

The record task state is indicated in the list with the following icons:

— The record task is failed (USB storage is not connected)

— The record task is waiting for start (USB storage is connected)

— The record task is started

— The record task is completed

To add new record task, press the **F2** (green) button.

Figure 33. Record Task Editing

The appeared menu allows editing of the record task parameters. In this mode the cursor shape is changed and the cursor points to the currently edited position. The record time and date are specified in HH:MM and DD.MM.YYYY formats respectively. The records longer than 24 hours are not supported. To exit the editing mode, press the **F1** (red) button. The cursor shape is restored. The selected menu item is highlighted. To continue the task editing, select the required parameter (menu item) and press the **OK** button. To confirm the parameter changes, press the **OK** or the **F2** (green) button. The **F1** (red) button rejects the changes.

To edit the record task parameters, select the task in the list and press **OK** or **F3** (yellow) button. The edited values must be saved using the **Save** menu command. To exit from the editing mode without saving, return to the previous menu using the **PAGE BACK** or the button.

Press of the **F1** (red) button deletes the selected record task. To clear the record task list entirely, click the **Clear List** menu command.

2.7.3 Internet Broadcasting

2.7.3.1 Internet Broadcasting Using Announcements

To view TV programs delivered via IP network, you need connection to the global telecommunication network (Internet). When the Internet connection is established, the IP address is assigned to the STB automatically. Manual assignment of a static address is available too.

To view IPTV broadcasting, select the **IP Channels** item from the main menu. The available announced channel list (or message about any broadcasting absence) is displayed after few seconds search. The list is refreshed every 2-3 seconds, therefore repetition of the channel search is not needed. Select the required channel from the list and press the **OK** button. During the playback the **STOP** and **START** functions are available. The **Selected Channel** menu command provides quick access to the last selected channel.

Figure 34. IPTV Channel List — Broadcasting Using Announcements

The STB receives the multicast channels using the SAP announcement mechanism. Manual URL input is available too (for instance, in the form of '`rtsp://224.0.0.1:1234`'). To input data manually, press the **F4** (blue) button and type the URL using the plugged USB keyboard or the remote control numeric buttons. To erase incorrectly typed symbols, use the **PAGE BACK** button. The **F2** (green) button confirms the typed data, and the **F1** (red) button abandons it. To retrieve URL of the channel, select it in the list and press the **F2** (green) button.

2.7.3.2 Internet Broadcasting Using Channel List

If your Internet-provider supports the channel list service, the **TV Channels List** menu contains extra functions.

Figure 35. IPTV Channel List — Broadcasting Using Announcements

The listed channels can be combined into subject groups. To select the channel group, use the remote control red (**F1**) button or activate corresponding item of the **TV Channel List** menu.

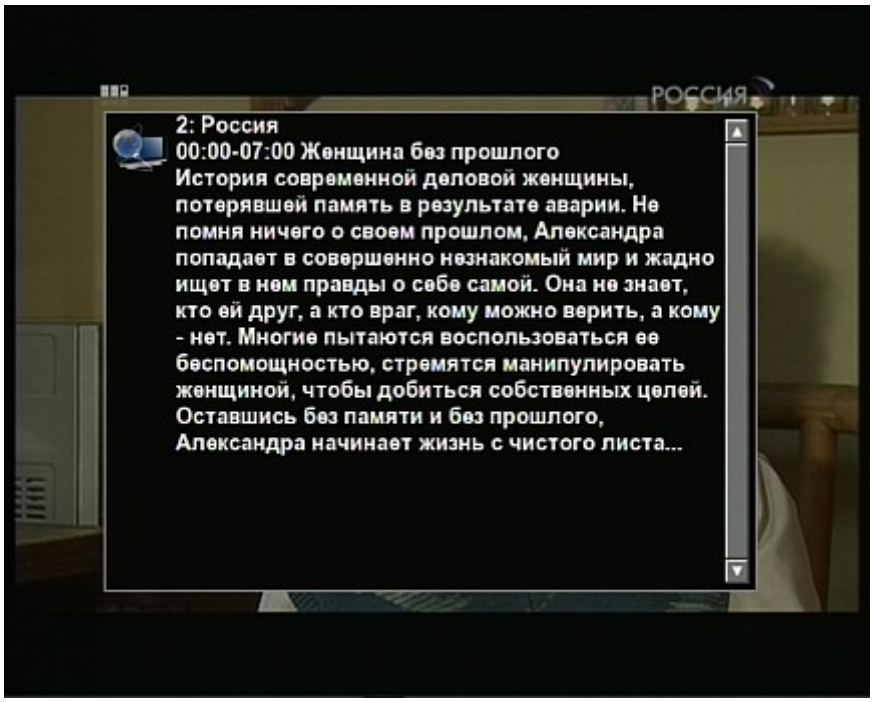
If the Electronic Program Guide (EPG) service is provided for the selected channel, the current telecasting information (name, times of the broadcast beginning and end) is indicated on the TV screen.

Figure 36. IPTV With the EPG Service

To switch the short/detailed mode of the information indication during the program view, use the remote control blue (**F4**) button. The remote control **Left** and **Right** buttons are used for program selection. The channel selection is performed with the **Page Up** and **Page Down** buttons.

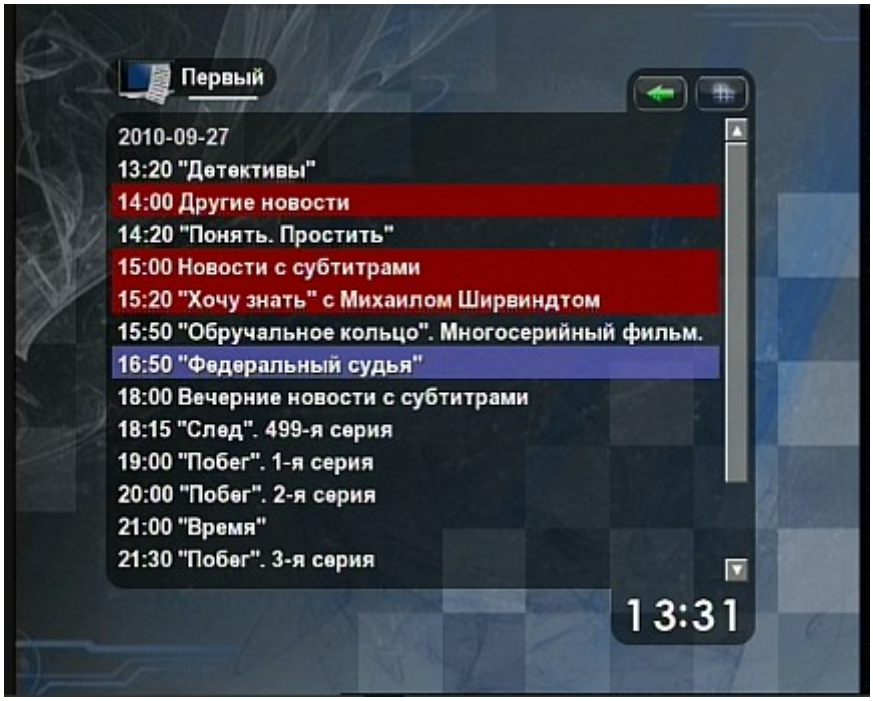
Figure 37. IPTV With the EPG Service – Short Information

Figure 38. IPTV With the EPG Service – Detailed Information



To view the nearest program schedule, select the channel from the list and press the F4 (blue) button.

Figure 39. Electronic Program Guide



2.7.3.3 IPTV Program Recording

Two IPTV recording modes are supported — 'on demand' and 'on the schedule'.

To start 'on demand' recording during the Internet broadcast view, press the remote control **REC** button or click the corresponding item in the screen menu. To stop the recording process, press the **REC** button repeatedly or press the remote control or menu **STOP** button.

To start 'on the schedule' recording, use EPG information (if available) or specify the record parameters manually. If the EPG is used, select the required program from the program schedule and press the **REC** button. The selected program is highlighted with red color. The record task is created automatically. To cancel the record task, press the **REC** button repeatedly.

To specify the record parameters manually, select the required channel from the IPTV channel list and press the **REC** button. Specify the record parameters in the appeared menu.

Figure 40. IPTV Program Recording – Task Editing

To quick jump from the IPTV channel list to the record menu, select the **Back** or **Main Menu** menu items (with the **Left** button) and press the remote control **REC** or **F4** (blue) buttons.

2.7.4 Video on Demand

To view Video on Demand (VoD) programs, you need connection to the global telecommunication network (Internet). When the Internet connection is established, the IP address is assigned to the STB automatically.

Note! *Usually the VoD service is chargeable (user charge or pay per view).*

To request the available program list from VoD server, select **Movies (VOD)** from the main menu.

Figure 41. Video on Demand Menu

To select movie, highlight required program and press the **PLAY** button on the remote control. During the playback the **STOP, PAUSE**, **FFWD**, and **REW** functions are available. The **FFWD** or **REW** repeated press changes the fast forward or rewind speed.

Figure 42. Video on Demand – Fast Forward (6x Speed)

To change the current playback position, use the navigation slider (see the tables above describing the STB front panel and remote control buttons).

Figure 43. Video on Demand – Navigation

It is possible to input address for the VoD program receiving. To input address manually, press the **F4** (blue) button and type the URL using the plugged USB keyboard or the remote control numeric buttons. To erase incorrectly typed symbols, use the **PAGE BACK** button. The **F2** (green) button confirms the typed data, and the **F1** (red) button abandons it.

The **Selected Movie** menu command provides quick access to the last viewed movie.

2.7.5 USB

2.7.5.1 Playback From External USB Storage

To view previously saved media files, plug an external USB storage (FlashDrive, portable USB disk, etc.) and select **USB** from the main menu.

Figure 44. USB Menu — All Files

The **USB** menu allows exploring files and directories located on any plugged USB storage. The F4 (blue) button switches the file filtering mode. The following modes are available (types of displayed files):

- — only video files
- — only audio files
- — only image files
- — all files

The icon of the current filtering mode is located in the upper-left screen corner.

Figure 45. USB Menu — Video Files

The **F2** (green) button invokes the USB settings menu that allows user to set the playback, slide show, and file filtering modes.

Figure 46. USB Settings Menu

During playback of the USB media files the following auxiliary controls appear on the screen:

The **Playback Mode** button sets the playback mode for the selected media file. The repeated button click changes the mode. The following modes are available:

- — playback of one selected file

- — file by file consecutive playback
- — looped file by file consecutive playback
- — continuous playback in random file order

2.7.5.2 Slide Show

The **Slide Show** button turns on the image viewing. When any image is displayed, the viewing control buttons appear on the right side of screen. The upper and lower buttons change the currently displayed image. The **PAGE UP** and **PAGE DOWN** buttons on the remote control perform the same actions. The second button switches the image viewing mode. The following modes are available:

- — image viewing is switched off
- — selected image is displayed continuously
- — displayed images are changed one after another with the specified time lag
- — displayed images are changed in random order with the specified time lag

The third button allows user to set the slide show time lag (the displaying time for each image).

The image viewing process can be accompanied by music playback. If any images are located in the music file directory (for instance, album covers), the image displaying is started automatically in background mode. This option is disabled, if the image viewing is activated by user.

Figure 47. Displaying of Album Cover During the Music Playback

The image viewing process is also available, if any broadcast program is received and viewed.

2.7.6 Favorites

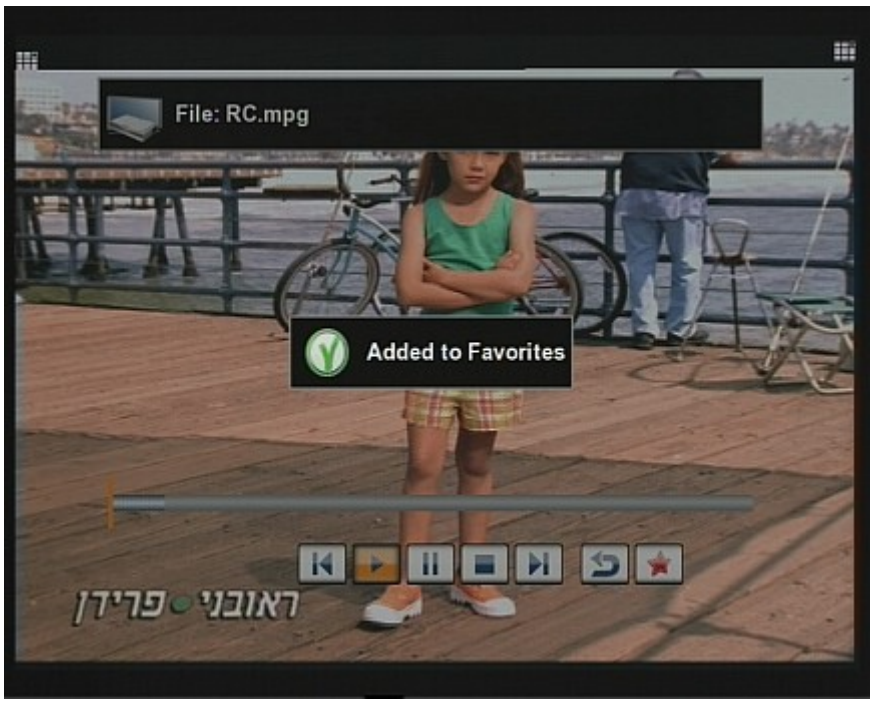
The **Favorites** menu allows quick access to the selected media data.

Figure 48. Favorites Menu

To add new item to the **Favorites** list from any menu, select required element and press the **F3** (yellow) button on the remote control. You can add the current audio or video program to **Favorites** using the same button.

Figure 49. Addition to the Favorites From the Movie List

Figure 50. Addition to the Favorites During Playback From USB Storage



To add new link to the list of favorite media content, select the **Add URL** command, press the **OK** button, and type the address in the appeared window using the remote control numeric buttons or plugged USB keyboard. To erase incorrectly typed symbols, use the **PAGE BACK** button.

Figure 51. Manual Link Addition to the Favorites List

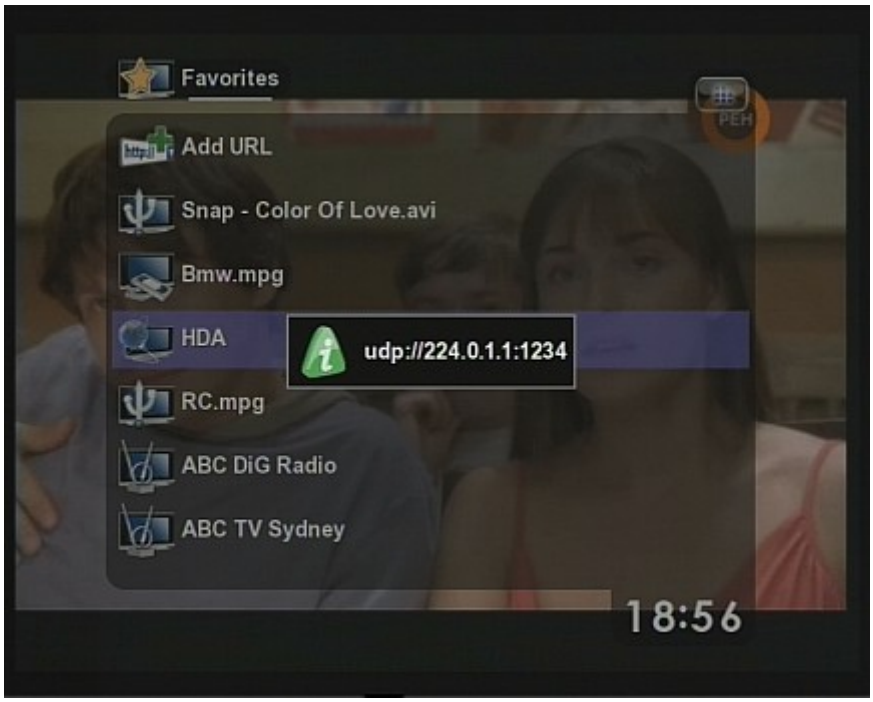
The **F2** (green) button confirms the typed data, and the **F1** (red) button abandons it.

To rename any element from the **Favorites** list, press the **F4** (blue) button and type the new name.

Figure 52. Favorites – Item Renaming

The **F3** (yellow) button allows editing of the selected item link. To display the current link information, press the **F2** (green) button.

Figure 53. Favorites – Link Information



Note! *The information about the last viewed program (DVB-T or IPTV) or file (USB storage) is kept in the STB memory. The program/file playback is continued automatically, when the STB is turned on and the loading is completed. This option can be disabled in the* ***Interface*** *part of the* ***Settings*** *menu.*

2.7.7 Internet

The STB provides several types of internet services. To select a required service, use the **Web Services** menu.

Figure 54. Web Services Menu

2.7.7.1 Network Browsing

The STB allows you to browse your network common resources and to play available media files. For instance, this function allows you to play video or view photos from shared folders of your home PC connected to the STB LAN socket.

To start the network browsing, select the **Network Browsing** item from the **Web Services** menu.

Figure 55. Network Browsing

To work with the network resources, at first select required workgroup from the list.

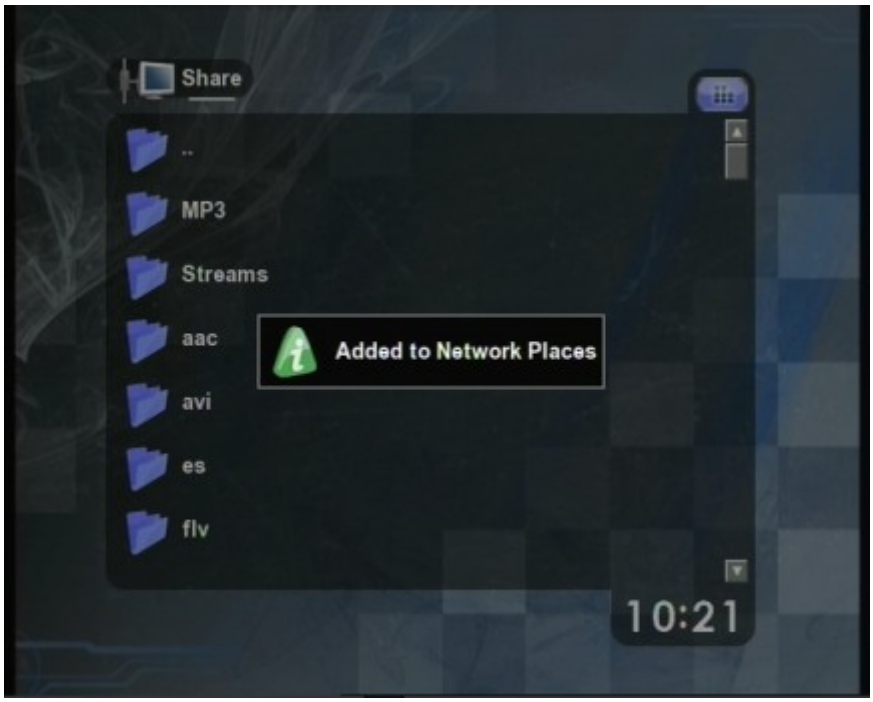
Figure 56. Workgroup List Browsing

The next step is selection of computer and browsing of its shared folders list.

Figure 57. Browsing of Shared Folders List

The shared folder selected for the browsing is automatically added to the special **Network Places** menu.

Figure 58. Folder Addition to the Network Places Menu and File Browsing



Content browsing for the folders added to the Network Places menu is performed in exactly the same way as a USB storage browsing.

Figure 59. Network Places Menu

If the selected folder is not added to the **Network Places** menu and the error message is displayed, it means that access to the selected folder is restricted by the folder owner.

Figure 60. Folder Addition to the Network Places Menu – Error Message

To enter required username and password, press the remote control blue (**F4**) button and type.

Figure 61. Username Entering

Figure 62. Password Entering

If the username and password are specified correctly, the shared folder is added successfully and the file browsing is continued. The next access to this folder does not require the username and password entering. To reset the access information, recall the entering menu (**F4** button) and delete the entered data. The specified username and password are not available after the STB restart.

To remove unnecessary or inaccessible folder from the **Network Places** menu, highlight the folder and press the remote control red (**F1**) button.

2.7.7.2 Media Servers

The **Media Servers** item of the **Web Services** menu allows you to browse available media servers.

Figure 63. List of Media Servers

Content browsing for the selected server is performed in exactly the same way as shared folders and USB storage browsing.

Figure 64. Media Server Browsing

2.7.7.3 YouTube

The YouTube menu allows view the list of the most popular video clips. To start playback, select the clip in the list and press the **OK** button.

Figure 65. YouTube Menu

To search a video clip, click the **Video Search** command and specify search keywords in the appeared window. To search clips that descriptions and comments do not contain certain words, type the '-' (minus) symbol before these words. The search process is started, if the typed keyword are confirmed with the **OK** button press.

Figure 66. Search of YouTube Clips

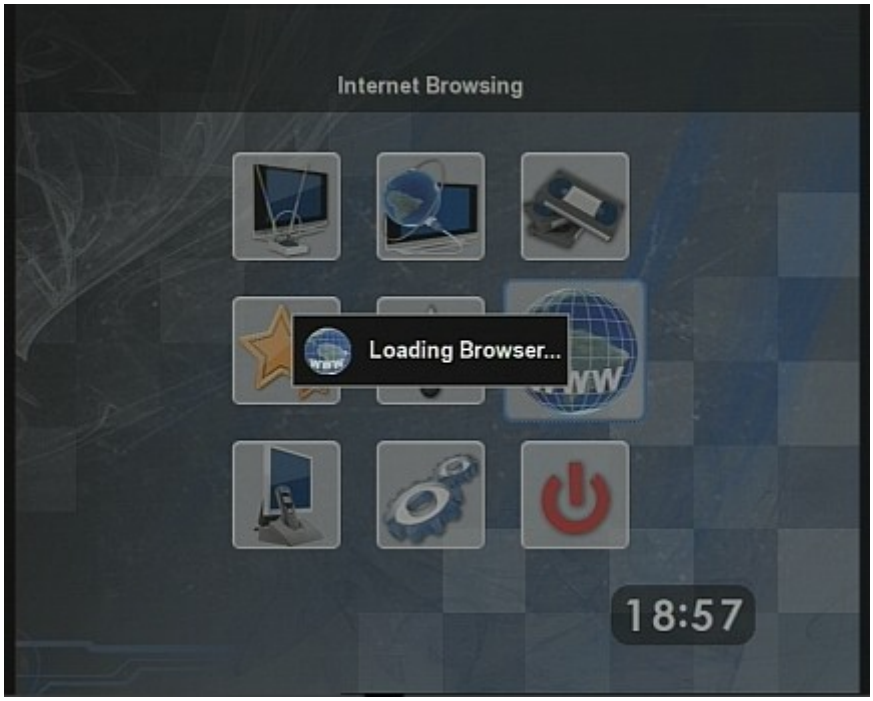
2.7.7.4 Web Navigation

The STB allows web navigation. To start the web browser, from the **Internet** menu select the

Internet Browsing service or press the **WEB** button on the remote control. To exit from the web mode, press the **EXIT** button. Plug a USB keyboard and/or mouse for the web browsing facilitation.

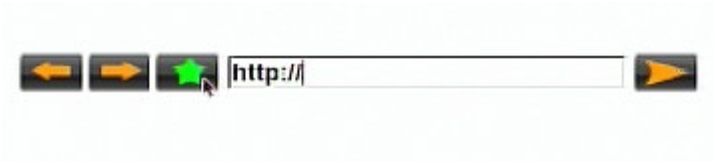
The browser operates in one of two modes – common and MiddleWare. The common mode is default and provides web navigation. The browser starts work in this mode right after the **WEB** button press.

Figure 67. Web Browser Loading



To type address of the required website, invoke the control panel using the **WEB** button.

Figure 68. Web Browser – Control Panel



The second **WEB** button press hides the control panel. For the address typing you can use the virtual keyboard that is invoked with the **SERVICES** button. Select the required virtual key using the navigation buttons (**Up**, **Down**, **Right**, and **Left**) and press the **OK** button.

Figure 69. Web Browser – Control Panel and Virtual Keyboard

The second **SERVICES** button press or the **EXIT** button press hides the virtual keyboard. To

confirm the typed address, press the **OK** button on the remote control or click the button on the control panel. The functions of the keyboard color buttons are the same as the functions of the corresponding color buttons on the remote control. The buttons allow navigation to the previous and next visited web pages. The button displays the **Favorites** list.

Figure 70. Web Browser – Favorites

To add the current web page to the **Favorites**, press the **F3** (yellow) button.

Figure 71. Web Browser – Adding to Favorites

To invoke the web browser settings (scale, cleaning of **Favorites** list, etc.), press the **TV** button on the remote control.

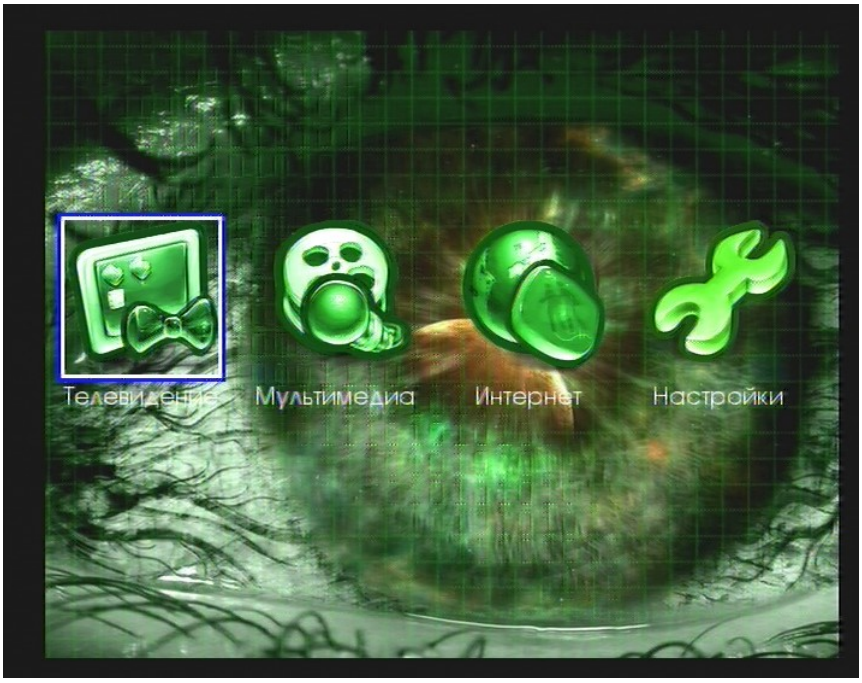
Table 5. Functionality of the Remote Control Buttons in the Web Navigation Mode

Button	Action
SERVICES	Displays the virtual keyboard.
SERVICES or **EXIT**	Hides the virtual keyboard.
UP (navigation button)	Moves the cursor upward.
DOWN (navigation button)	Moves the cursor downward.
RIGHT (navigation button)	Moves the cursor rightward .
LEFT (navigation button)	Moves the cursor leftward.
PAGE BACK	Moves to the previous page.
REFRESH	Refreshes the current page.
VOLUME+	Scrolls upward.
VOLUME-	Scrolls downward.

Button	Action
CHANNEL+	Scrolls leftward.
CHANNEL-	Scrolls rightward .
TV	Invokes the browser settings menu.
WEB	Displays/hides the control panel.
F3 (yellow)	Adds the current page to the **Favorites** list.
EXIT	Closes the web browser.

The STB allows operation with any MiddleWare supplied by your Internet Service Provider (ISP). The MiddleWare installed on broadcasting servers provides the STB user interface, manages the system, and controls all services. To switch on the MiddleWare mode, specify the MiddleWare server address (provided by ISP) in the STB settings. If the server address is set and the **Auto Loading MiddleWare** option is enabled (see the *Settings* section), the MiddleWare mode is the STB default loading mode.

Figure 72. Web Browser – MiddleWare



In this mode the cursor is not displayed, and scrolling, virtual keyboard, and control panel are not available.

During playback of any media content in the MiddleWare mode the remote control buttons perform the following actions:

PLAY — playback start/stop

PAUSE — pause

FFWD — fast forward

REW — rewind

The **WEB** button press switches the MiddleWare mode to the common (web navigation) mode. To close the web browser, use the **EXIT** button.

The proxy server settings (if it is necessary for the Internet access) are available via the **HTTP Proxy** command from the **Network → Settings → Internet Browsing** menu.

Figure 73. Proxy Settings

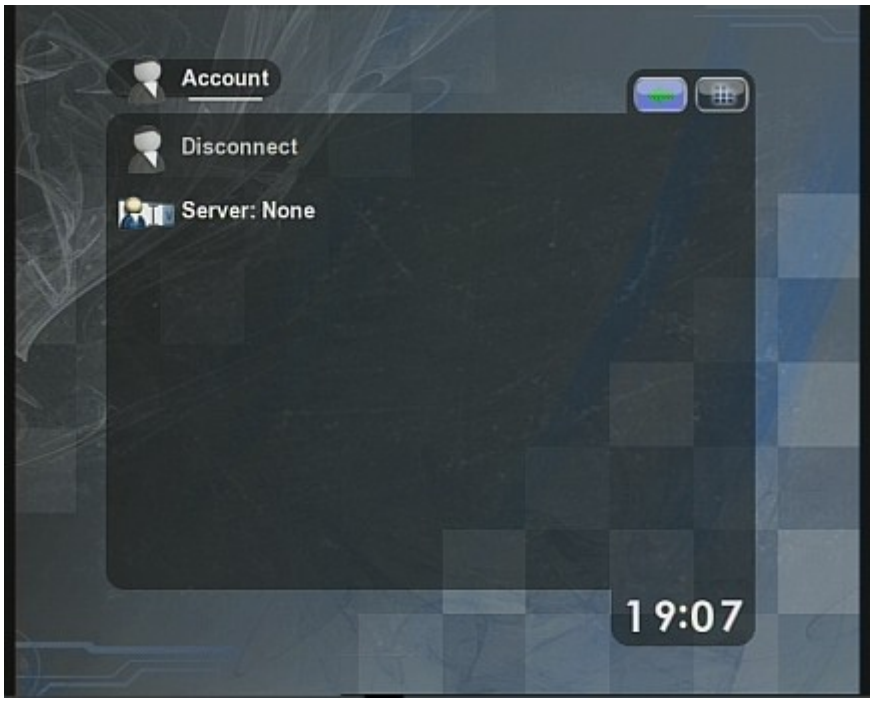
2.7.8 Voice over IP (VoIP)

2.7.8.1 VoIP Settings

Figure 74. VoIP Menu

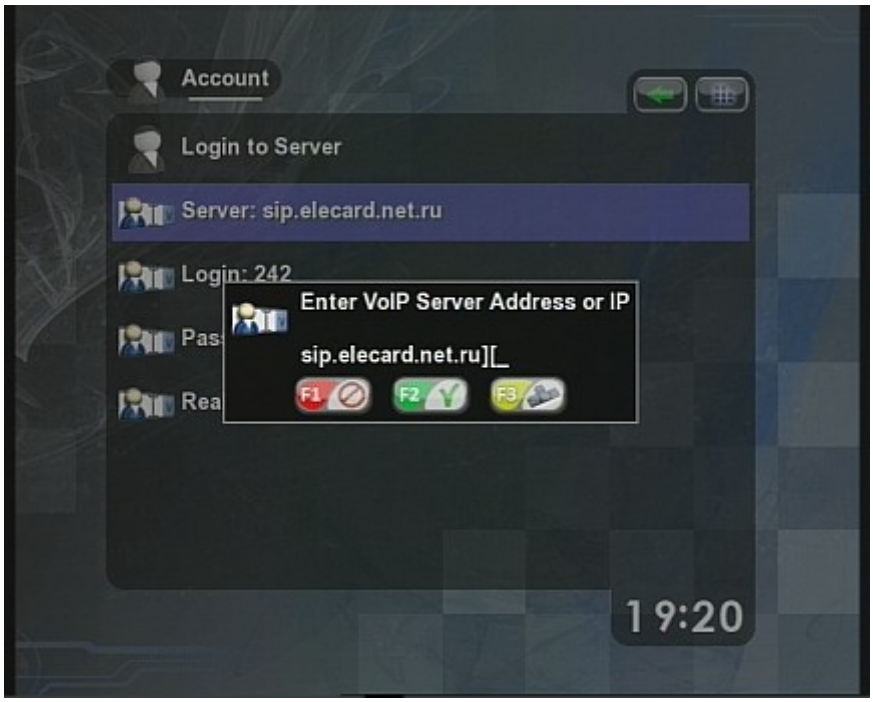
If your ISP supports the VoIP service, the STB adjustment is necessary before the service use. The VoIP settings are available in the **Account** submenu from the **VoIP** settings..

Figure 75. Account Submenu



Type the VoIP server IP address in the **Server** field.

Figure 76. VoIP Server Address Setting



The server address confirmation enables the **Login**, **Password**, and **Realm** fields. The **Password** string is displayed only during the password typing. If all fields are filled in correctly and the server is available, the **Login to Server** menu command activates a try for the service connection. If any errors are absent, the **Login to Server** field is replaced by the **Disconnect** one and the **Account** icon becomes green.

Figure 77. VoIP Menu After the Server Connection

When the server is connected, any home and cellular telephone calls are also available.

2.7.8.2 Outgoing Calls

To make an outgoing call, select the **Dial** command and type the abonent SIP address in the appeared window. In the server connected mode you can type any home or cellular number or character name. If server is not connected, only peer-to-peer call are available and only IP address is acceptable.

Figure 78. SIP Address Typing

After the address confirmation the call is started. During the telephone conversation the **Call**

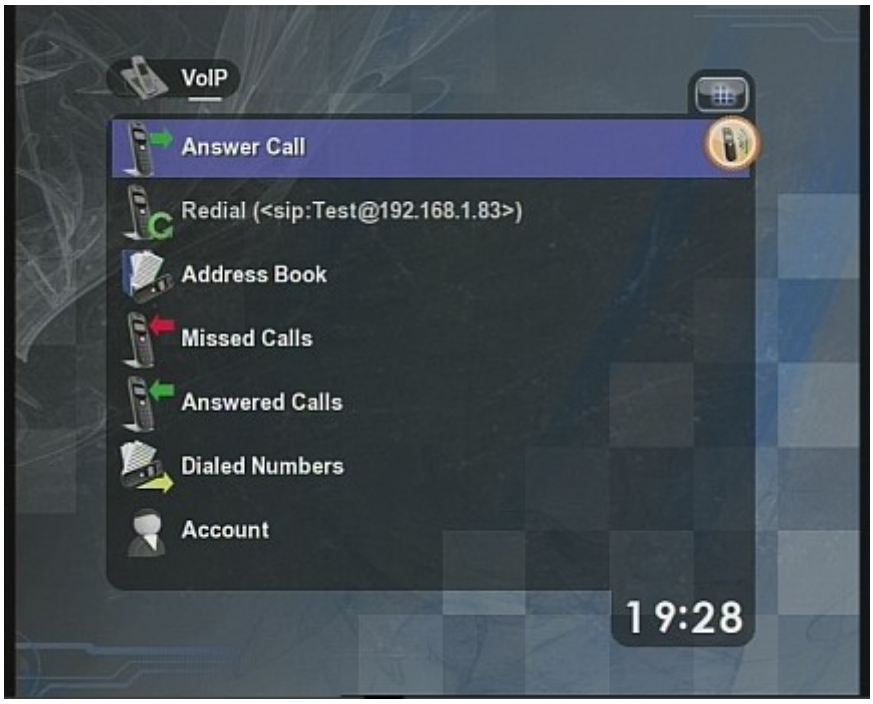
icon blinks in the upper-right screen corner. To finish the conversation, hang up the telephone receiver or select the **Hang up** menu command

Figure 79. VoIP Menu – Outgoing Call Mode

2.7.8.3 Incoming Calls

When an incoming call is received, the **Call** icon blinks in the upper-right screen corner.

Figure 80. VoIP Menu – Incoming Call Mode



To answer an incoming call, use one of the following ways:

- Take up your handset
- Press the PHONE button on the remote control
- Select the **Answer Call** command from the **VoIP** menu

2.7.8.4 Address Book

Figure 81. Address Book Menu

The address book contains the phone directory. To add new contact, select the **Add** command from the **Address Book** submenu or press the **F3** (yellow) button from all of the **VoIP** submenus. The SIP address is typed in the same way as described in the *Outgoing Calls* section.

Figure 82. Addition to the Address Book

As in the case of **Favorites** list, any contact can be renamed using the **F4** (blue) button. The **F3** (yellow) button allows editing of the selected contact data. To display the current contact information, press the **F2** (green) button. The **F1** (red) button removes the selected contact from the address book.

2.7.8.5 Missed Calls, Answered Calls, Dialled Calls

These submenus list missed, received, and dialled calls. To add call from any list to address book, press the **F3** (yellow) button. To display the selected SIP address, use the **F2** (green) button. The **F1** (red) button removes the selected call from the list. The **Clear list** command clears the current call list entirely.

Figure 83. Missed Calls List

Figure 84. Answered Calls List

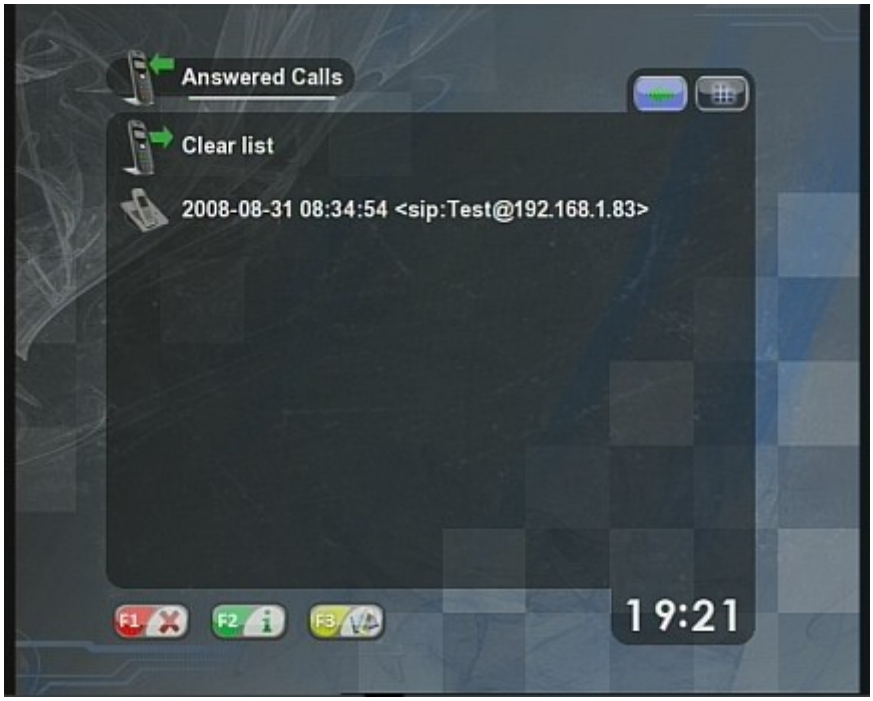
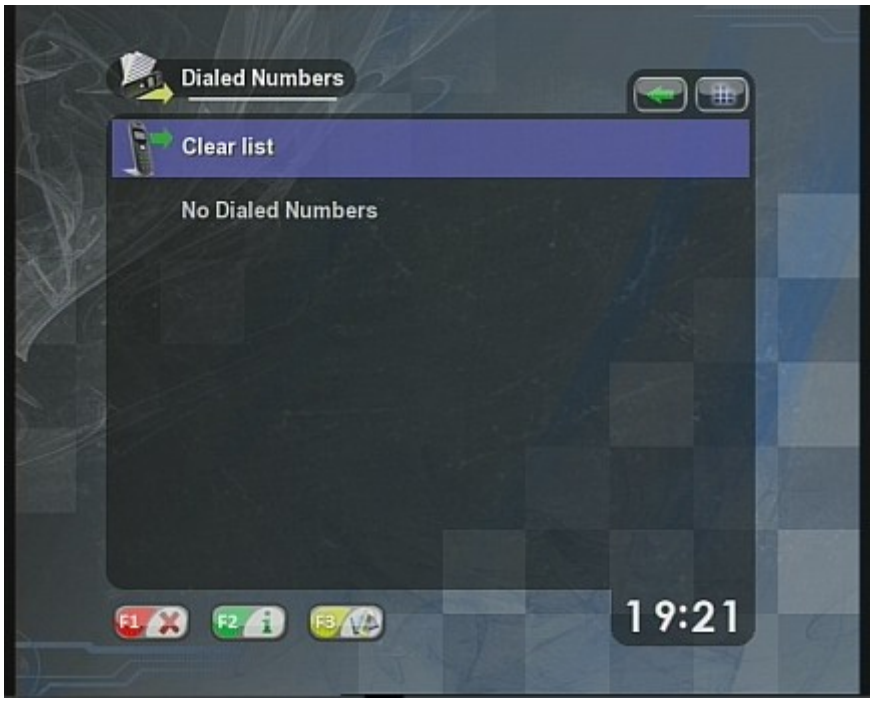


Figure 85. Dialled Calls List



2.7.9 Settings

To adjust the STB settings, select the **Settings** item from the main menu or press the **SERVICES** button on the RC.

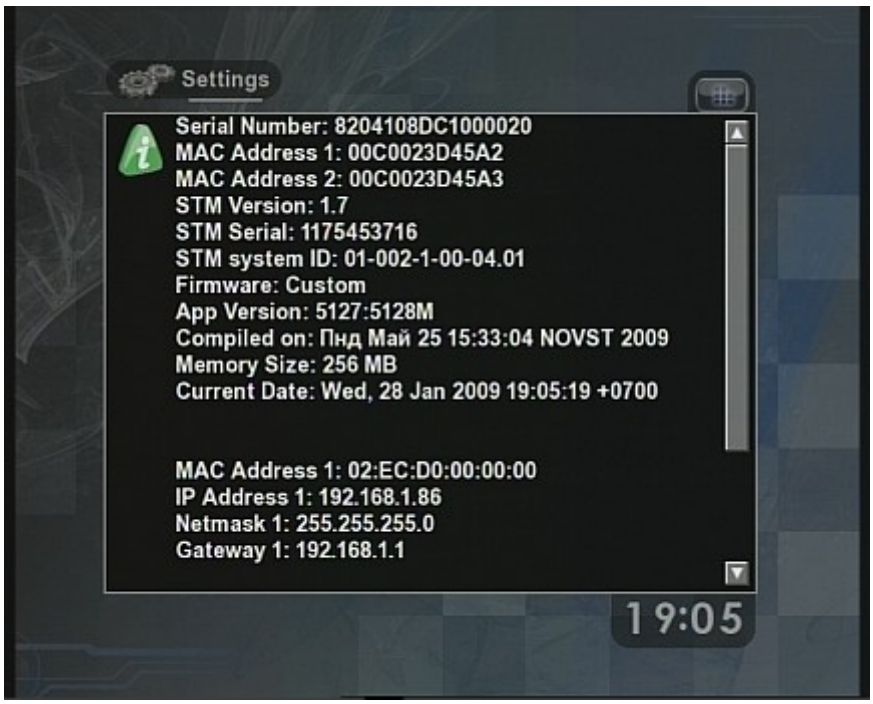
Figure 86. Settings Menu

Figure 87. Settings Menu (2)

2.7.9.1 Information

To display the information about STB, software version, network parameters, etc., select the **Information** command from the **Settings** menu.

Figure 88. Information



2.7.9.2 Language

The **Language** menu item allows you to specify the STB user interface language. Selection of this command opens the list of available languages. The current interface language is

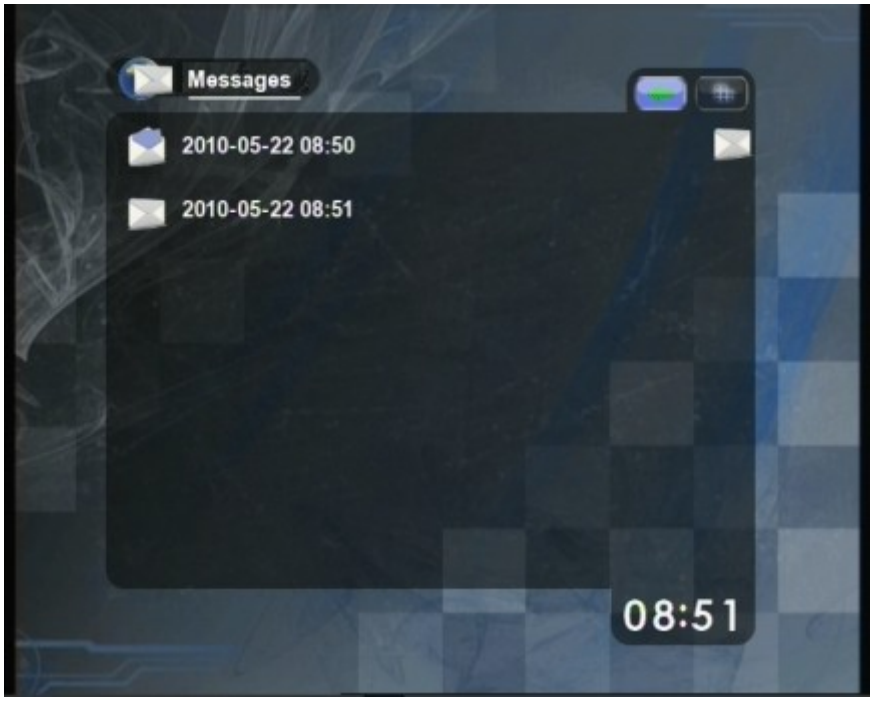
highlighted.

***Note**! The language change is applied only after the STB system restart.*

2.7.9.3 Messages

The **Messages** menu allows receiving and reading messages from your telecoms operator.

Figure 89. Messages Menu

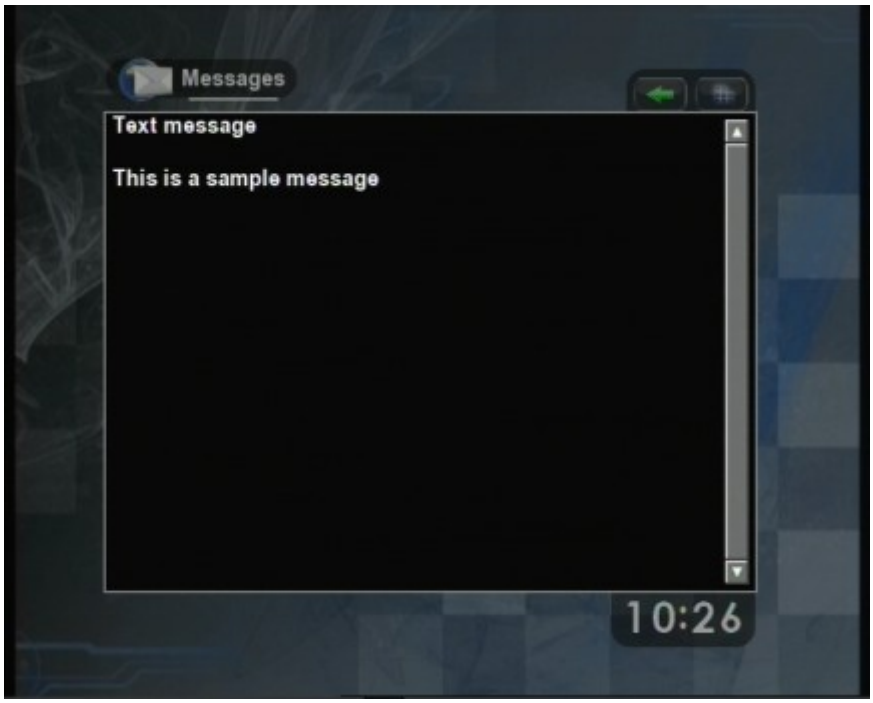


If a new message is received, the unread message icon appears in the upper-right screen corner.

Figure 90. Main Menu With Unread Message Icon

To read the received message, open the **Messages** menu and activate the required message. If all of the received messages are read, the unread message icon disappears.

Figure 91. Message Reading



2.7.9.4 Time and Date

The **Time and Date** menu allows you to set the time values that are necessary for correct work of some features (EPG, and so on):

To set the current time, select the **Set Time** command and specify the time value using the remote control numeric buttons. The **F2** (green) button confirms the typed data, and the **F1** (red) button abandons it.

To set the time zone, select the **Set Time Zone** command, choose the required time zone using the navigation (**Up**, **Down**, **Right**, and **Left**) buttons, and press the **OK** button.

To set the current date, select the **Set Date** command and specify the date value using the remote control numeric buttons. The **F2** (green) button confirms the typed data, and the **F1** (red) button abandons it.

The **NTP Server** menu item allows you to specify the name or IP-address of the time synchronization server.

2.7.9.5 Video and Audio

The **Video and Audio** menu allows you to set the common (for all sources) parameters that determine the media data playback.

Figure 92. Video and Audio Settings

The following settings are available:

TV Standard – sets standard of the received TV signal. Available values:

- **NTSC**
- **SECAM**
- **PAL_I**
- **PAL_M**

Output Format – activates one of the STB video outputs:

- **S-Video**
- **CVBS**

Screen Aspect Ratio – sets the picture aspect ratio for the best fit to the screen size of used TV set. The following values are available:

- **4:3**
- **16:9**

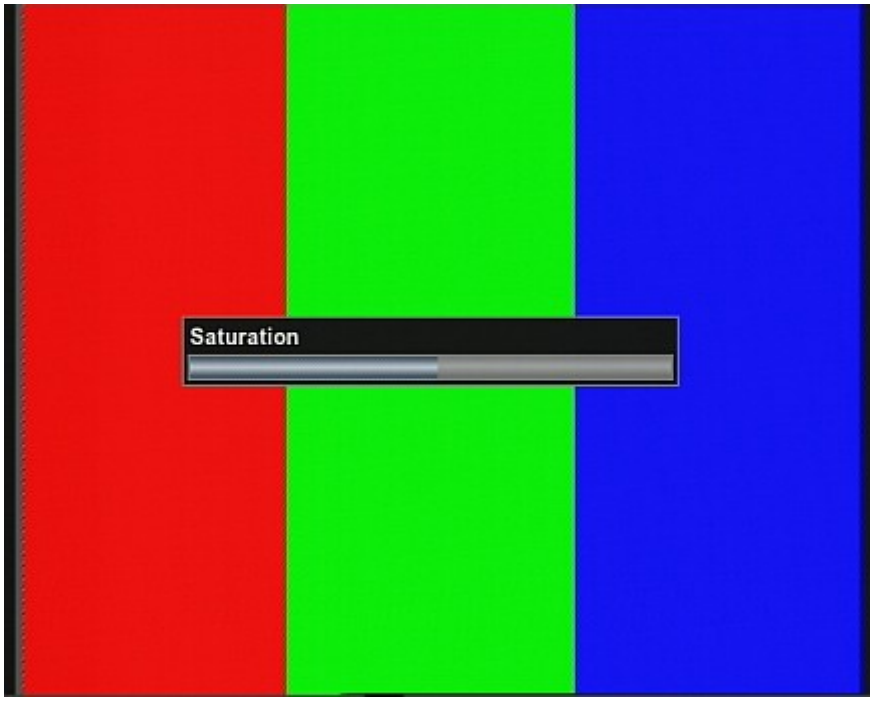
Picture Size – changes the picture size mode using the repeated **OK** button pressing. The following modes are available:

- **Auto Scale** – The picture is scaled so that it occupies all available screen area with the aspect ratio keeping
- **Auto Stretch** – The picture is scaled to full screen size without the aspect ratio keeping
- **Original Size** – The picture size is not changed

Screen Filtration — enables/disables picture filtration during web browsing (can make some difficulties for small font reading).

Color Settings — adjusts the picture hue, saturation, contrast, and brightness using the **Up**, **Down**, and **OK** buttons. The **EXIT** button closes the **Color Settings** menu. If any program is not viewed during the color adjustment, the test image is displayed for the settings visual control.

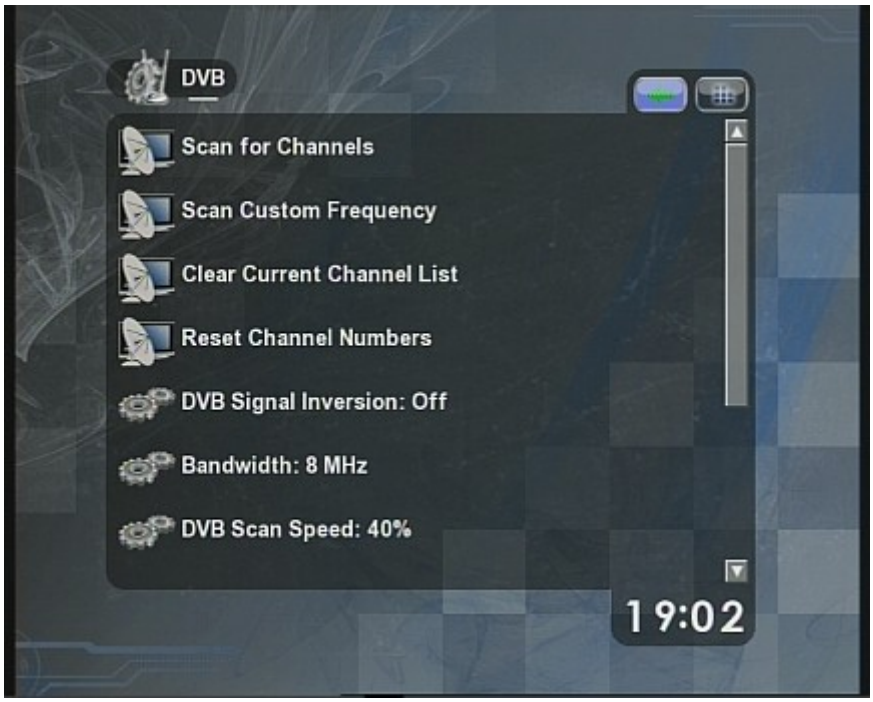
Figure 93. Color Settings



2.7.9.6 DVB

The **DVB** settings menu allows configuration of the broadcast channels and adjustment of the DVB parameters.

Figure 94. DVB Settings Menu



The **Clear Current Channel Lis**t command removes all items from the configured channel list. After the list clearing the channels must be configured again using the **Scan for Channels** or **Scan Custom Frequency** commands.

The **Reset Channel Numbers** command allows reordering of the configured channel numbers. This command does not clear the channel list.

The **DVB Signal Inversion**, **DVB Scan Speed**, and **Extended Scan of DVB Channels** parameter values are set using the **OK** button repeated pressing.

To set the **Lower DVB Frequency Limit**, **Upper DVB Frequency Limit**, and **DVB Frequency Step** parameter values, use the remote control numeric buttons. Confirm the typed value with the **F2** (green) button or abandon it with the **F1** (red) button.

In the extended scanning mode the channel scanning is performed in extended frequency range (not only for reference frequencies). This option increases the scanning time.

The **DVB Frequency Step** parameter has an influence on the scanning speed. The default parameter value is 8 MHz. The large value can cause missing of some channels.

2.7.9.7 Network

The **Network** settings menu allows you to set the network parameters.

Figure 95. Network Settings

The Network menu is divided into the following submenus:

Figure 96. WAN Menu — Internet Connection Settings

Address Mode – specifies the address receiving mode for the Internet network adapter:

- **DHCP** – address is received automatically (if it is possible)
- **Static** – address is specified by user

IP Address – specifies the STB IP address that is used, if the automatic address receiving is disabled or unavailable

Netmask – specifies the mask of subnetwork to wich the STB is connected

Gateway – specifies the gateway address that is used, if the automatic address receiving is disabled or unavailable

DNS Server Address – specifies the DNS server address that is used, if the automatic address receiving is disabled or unavailable

Renew IP-address Settings – applies the Internet network adapter settings

Figure 97. LAN Menu — LAN Adapter Settings

Enable Gateway – enables/disables the network gateway mode for the second network adapter:

- **Off –** the gateway mode is disabled
- **DHCP and NAT** – the automatic address setting (for connected network devices) and the network address translation are enabled
- **Bridge** – the bridge mode is enabled (the STB operates as a two-port router)
- **NAT** – only the network address translation is enabled (the network parameters of connected devices must be set manually)

Batdwidth Limit – limits network traffic for the second adapter. This option is unavailable, if the gateway mode is disabled. In the bridge mode the bandwidth limitation is available if only the connected device address is specified explicitly. To disable the traffic limitation, the zero value must be set.

Client MAC Address – specifies the MAC address of the device connected to the second network adapter. This option is available, if the bridge mode and traffic limitation are enabled. If the value is not specified or incorrect, the network traffic is blocked.

Address Mode 2 – specifies the address receiving mode for the second network adapter:

- **DHCP** – address is received automatically (if it is possible)
- **Static –** address is specified by user

IP Address – specifies the STB IP address (second network adapter)

Renew IP-address Settings – applies the second network adapter settings

The Wireless menu allows settings of a wireless network adapter (is not included into the STB delivery set).

Figure 98. Wireless Menu – Wireless Network Settings

If a wireless network adapter is connected to the USB socket, the STB creates an 'ad hoc' home wireless network automatically. If the WAN network adapter is adjusted and connected to the Internet, the Internet access is available in the STB home wireless network.

If the adapter is absent or disconnected, the wireless network settings are disabled.

IP Address – IP-address of the STB wireless network

Netmask – mask of the STB subnetwork

ESSID – network name

Channel Number – number of the wireless network channel

Mode – encryption mode. The following encryption modes are available for the wireless network:

- *No* – encryption is disabled
- *WEP* – wireless traffic is encrypted with WEP

Password – wireless network password, if the encryption mode is enabled

Renew IP-address Settings – applying of the specified adapter settings

Figure 99. IP Channels Menu

IPTV Channel List – if the *SAP* parameter value is set, the STB retrieves the IPTV channel list using the SAP-announcements. If the SAP-announcements are not broadcast in the network, the channel list provided with HTTP server can be used. In this case the *URL* parameter value must be set. This value enables the following auxiliary parameters:

IPTV Channel List – this parameter specifies URL of the channel list. The plain text, M3U, and XSPF list formats are supported.

IPTV EPG – specifies URL for the Electronic Program Guide (if the broadcast channel list is supplied with this service)

Figure 100. Movies (VOD) Menu

VOD Playlist – this parameter specifies interpretation of the next parameter. The following values are available:

- *URL* – the next parameter specifies URL of the XSPF VOD playlist
- *IP-address* – the next parameter specifies the address of server that provides the list of programs available for playback from the VoD server

IP Address of VOD Server – specifies the address of server that provides the VoD services.

Figure 101. Internet Browsing Menu

HTTP Proxy – specifies the address of proxy server that is used for web navigation.

HTTP Proxy Login – specifies the proxy login name.

HTTP Proxy Password – specifies the proxy login password.

MiddleWare Address – specifies the IP address of MiddleWare server.

Auto Loading MiddleWare – enables the STB automatic loading in the MiddleWare mode.

Note! *In the MiddleWare mode use of the proxy server is not recommended.*

2.7.9.8 Interface

The **Interface** menu allows you to adjust the STB user interface parameters – menu transition effects, highlight color. Также имеется возможность настроить следующие параметры:

Resume Playback After Start — if enabled, the restarted STB resumes playback of the last selected DVB or IP channel.

Autoplay — if enabled, the **DVB** or **IP Channels** menu opening automatically starts playback of the last viewed or the first in the list channel. This feature does not stop the channel playback started previously.

VoIP Indication — if enabled, the IP call information is displayed on the screen. If the option is disabled, the VoIP operation is not indicated.

Buzzer — if enabled, the STB provides buzzer together with the telephone set.

Figure 102. Interface Settings Menu

2.7.9.9 Reset All Settings

The **Reset All Settings** command allows you to reset all parameters to the default values (factory settings). To confirm the reset, press the **F2** (green) button. The **F1** (red) button abandons it.

Figure 103. Parameter Reset Confirmation

2.7.10 The STB Software Update

The software update is performed during the STB loading. The update is possible both from any USB storage connected to the STB and via the IP network. The minimal update search time is about 6 seconds and 1 second, respectively. If the previous STB loading was not completed successfully, the system integrity check is performed during about 20 seconds. If the software update is available, the loading time increases up to 1-2 minutes (depends on the data amount). The STB is restarted, if any critical system components are changed during the update process.

2.7.10.1 Update From USB Storage

To perform the STB software update from any USB storage, copy the update file with the filename extension .EFP to the storage root directory. The directory may contain any number of update files. When the USB device is connected to the STB and the STB is restarted, the system automatically determines the last version of suitable file and starts update process. The STB is restarted, if any critical system components (for instance, core) are changed during the update process. If the suitable .EFP file is not found on the USB storage, the system tries to find it via the network. Updates from USB storage have higher priority than network updates.

2.7.10.2 Update via Network

To perform the STB software update via network, connect the PC with started Elecard STB Firmware Update Server to the STB network segment. If the STB system detects the new software version sent via the network, the update process is started. Updates from USB storage have higher priority than network updates. The STB is restarted, if any critical system components (for instance, core) are changed during the update process.

The update and loading progress information is displayed on the screen.

***Attention**! The STB incorrect operation may be caused by the update process abend. If the network cable or the USB storage is disconnected during the update process for some reason, wait till the STB loading is completed and try to repeat the software update.*

Appendix A. The STB Specifications – Summary Table

Supported Input Formats	
Video	MPEG-1, (ISO/IEC 11172-1), MPEG-2 (ISO/IEC 1318-1) MP@ML, MPEG-4.2 (ISO 14496-2) ASP, MPEG-4.10/H.264 (ISO 14496-10) MP@L3.0
Audio	MPEG-1 Layer I, II, III (MP3) (ISO/IEC 11172-3, ISO/IEC 13818-3), MPEG-4 AAC (ISO 14496-3)
IP Telephony	SIP (G711)
Stream an file formats	MPEG-2 TS/PS, AVI, MP4
Network protocols	UDP (unicast/multicast), IPv4,ICMP, DHCP client,IGMP v.3 (RFC2236), RTP (RFC1889), RTSP (RFC2326)
Web browser	HTML 4.02, JavaScript 1.5, XHTML, CSS-2, SSL3.0, DOM-2, XML
Supported Output Formats	
Video	Up to D1 (720x576 - PAL and 720x480 – NTSC)
Analog audio output	Stereo 20 - 20000 Hz
Digital audio output	Stereo PCM, AC3, DTS
TV Tuner	
Standard	DVB-T (ETSI 300 744)
Frequency range	174-230 MHz, 474 – 858 MHz
Bandwidth	7/8 MHz
Gain	50 Db
Input	IEC female 75 Ohm
Output	IEC male 75 Ohm
Jacks, Plugs, and Interfaces	
Video	Composite (RCA), S-Video
Audio	Stereo RCA, SPDIF (Optical)
IP Telephony	Phone jack RJ-11, FXS
USB	USB 1.1 Full-speed up to 12 Mbit/s (x2)
Ethernet	RJ-45 10/100 Mbit/s (x2)
TV Tuner	IEC
Power Supply	
Type	External unit
Input voltage	~100-240 V AC 50-60 Hz
Output voltage	12 V DC
Power consumption in Work mode	10 W
Power consumption in Standby mode	5 W
Power consumption in Sleep mode	< 0,5 Вт
Weight and HWD	
Weight	450 гр
HWD	238x145x35 mm
Working conditions	
Temperature	+5...+40 °C
Atmospheric moisture capacity	40—80 %
Atmospheric pressure	84—107 kPa (630—800 mm of mercury)